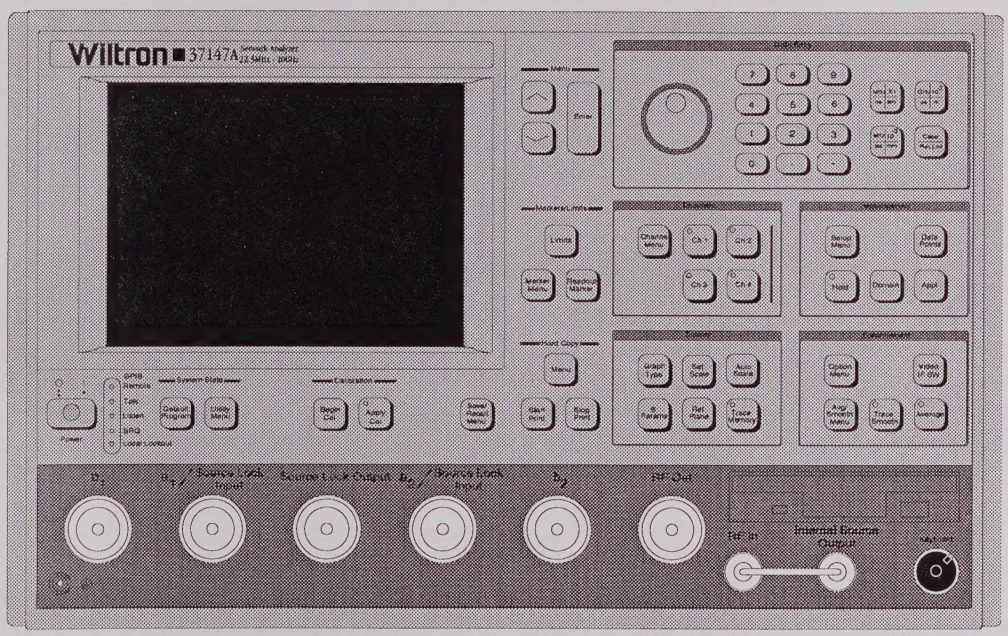
371XXA Series Vector Network Analyzer

GPIB QUICK REFERENCE GUIDE



This manual supplements the 371XXA Series Vector Network Analyzer Programming Manual. Insert it behind the tab marked Appendix C, GPIB Quick Reference Guide in that manual.

Wiltron

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371XXA VNA GPIB Quick Reference Guide

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371XXA VNA GPIB Quick Reference Guide

1. INTRODUCTION

This appendix provides a quick reference to the 371XXA GPIB Programming commands.

2. GENERAL

This guide is divided into two listings. Table 1 (beginning on page 4) provides an alphabetical listing of all 371XXA commands. These commands are also listed alphabetically and fully described in the 371XXA Programming Manual, Chapter 10.

Table 2 (beginning on page 40) provides a command listing that is functionally grouped. These function groups are described in Chapters 4 thru 9 of the 371XXA Programming Manual.

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
*CLS	Clear all Event Registers summarized in the Status Byte	IEEE 488.2 (Ch 7)
*DDT	Define device trigger command	IEEE 488.2 (Ch 7)
*DDT?	Define device trigger query	IEEE 488.2 (Ch 7)
*ESE	Set Standard Event Status Enable Register	IEEE 488.2 (Ch 7)
*ESE?	Standard Event Status Enable query	IEEE 488.2 (Ch 7)
*ESR?	Standard Event Status Register query	IEEE 488.2 (Ch 7)
*IDN?	Identification query	IEEE 488.2 (Ch 7)
*IST?	Individual Status Message (ist) query	IEEE 488.2 (Ch 7)
*OPC	Operation Complete Status	IEEE 488.2 (Ch 7)
*OPC?	Operation Complete query	IEEE 488.2 (Ch 7)
*OPT?	Options identification query	IEEE 488.2 (Ch 7)
*PRE	Set Parallel Poll Enable Register	IEEE 488.2 (Ch 7)
*PRE?	Parallel Poll Register Enable query	IEEE 488.2 (Ch 7)
*RST	Reset to default state	IEEE 488.2 (Ch 7)
*SRE	Set Service Request Enable Register	IEEE 488.2 (Ch 7)
*SRE?	Service Request Enable query	IEEE 488.2 (Ch 7)
*STB?	Status Byte query	IEEE 488.2 (Ch 7)
*TRG	Trigger	IEEE 488.2 (Ch 7)
*TST?	Perform self test and output pass/fail result	IEEE 488.2 (Ch 7)
*WAI	Wait to Continue	IEEE 488.2 (Ch 7)
A12	Simulate 12-term calibration	CALIBRATION (Ch 5)
A8R	Simulate 1 path, 2 port reverse path calibration	CALIBRATION (Ch 5)
A8T	Simulate 1 path, 2 port forward path calibration	CALIBRATION (Ch 5)
ABT	Simulate trans freq response calibration forward and reverse paths	CALIBRATION (Ch 5)
ADD	Select addition as Trace Math for active channel	DISPLAY (Ch 4)
ADPL	Enter adapter electrical length for adapter removal	ADAPTER REMOVAL (Ch 9)
ADPL?	Output adapter electrical length for adapter removal	ADAPTER REMOVAL (Ch 9)
ADRIVE	Selects the floppy drive as the default drive	DISK FUNCTION (Ch 8)
AFT	Simulate trans freq response calibration forward path calibration	CALIBRATION (Ch 5)
AH0	Turn automatic DUT protection OFF	MEASUREMENT (Ch 4)
AH1	Turn automatic DUT protection ON	MEASUREMENT (Ch 4)
AHX?	Output automatic DUT protection ON/OFF status	MEASUREMENT (Ch 4)
ALC	Initiate ALC loop internal calibration	DIAGNOSTICS (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
AMKR	Select active marker on all channels marker mode	MARKERS (Ch 6)
ANNCOL	Enter the color number for annotation and menu text	SYSTEM STATE (Ch 8)
ANNCOL?	Annotation and menu text color number query	SYSTEM STATE (Ch 8)
AOF	Turn averaging OFF	ENHANCEMENT (Ch 4)
AOF?	Turn data averaging OFF	ENHANCEMENT (Ch 4)
AON	Turn averaging ON	ENHANCEMENT (Ch 4)
APR	Enter Group delay aperture setting on active channel in percent	DISPLAY (Ch 4)
APR?	Group delay aperture for active channel query	DISPLAY (Ch 4)
ARB	Simulate reflection-only calibration for both forward- and reverse-paths	CALIBRATION (Ch 5)
ARF	Simulate reflection only forward path calibration	CALIBRATION (Ch 5)
ARR	Simulate reflection-only reverse path calibration	CALIBRATION (Ch 5)
ART	Simulate transmission-only reverse path calibration	CALIBRATION (Ch 5)
ASC	Autoscale the active channel display	DISPLAY (Ch 4)
ASP	Set polar stop sweep position angle for polar display on active channel	DISPLAY (Ch 4)
ASP?	Stop-sweep-position angle for polar display on active channel query	DISPLAY (Ch 4)
AST	Set polar start sweep position angle for polar display on active channel query	DISPLAY (Ch 4)
AST?	Output polar start sweep position angle for polar display on active channel query	DISPLAY (Ch 4)
ATTN	Attach next segment and make the active segment	LIMITS (Ch 6)
AVG	Turn data averaging ON and set number of averages.	ENHANCEMENT (Ch 4)
AVG?	Number of averages query	ENHANCEMENT (Ch 4)
BBL	Select broadband load for use as calibration standard	CALIBRATION (Ch 5)
BBMP	Select black background for screen dump bitmap	HARD COPY (Ch 8)
BBZ	Enter broadband load impedance for calibration	CALIBRATION (Ch 5)
BBZL	Enter the broadband load inductance for calibration	CALIBRATION (Ch 5)
BD1 - BD5	Select band 1, 2, 3, 4, or 5 for definition	MULTIPLE SOURCE CONTROL (Ch 9)
BEEP0	Disables the instrument from beeping whenever any of the 4 GPIB error types occurs.	SYSTEM STATE (Ch 8)
BEEP1	Enables the instrument to beep whenever any of the 4 GPIB error types occurs.	SYSTEM STATE (Ch 8)
BEEPX?	Output the GPIB beep on error enable/disable status	SYSTEM STATE (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
BEG	Begin calibration standards measurement process	CALIBRATION (Ch 5)
BEGN	Begin next segment and make the active segment	LIMITS (Ch 6)
BH0	Turn bias off while in Hold mode	MEASUREMENT (Ch 4)
BH1	Turn bias on while in Hold mode	MEASUREMENT (Ch 4)
BHX?	Output bias on/off during Hold mode query	MEASUREMENT (Ch 4)
BLU	Select blue as third plane color	SYSTEM STATE (Ch 8)
BPF	Set break point frequency for 3 line LRL calibration	CALIBRATION (Ch 5)
BSP	Set stop frequency for current band	MULTIPLE SOURCE CONTROL (Ch 9)
BSP?	Stop frequency for current band query	MULTIPLE SOURCE CONTROL (Ch 9)
BST	Set band 1 start frequency	MULTIPLE SOURCE CONTROL (Ch 9)
BST?	Band 1 start frequency query	MULTIPLE SOURCE CONTROL (Ch 9)
BWL3	Set 3 dB for bandwidth loss value	MARKERS (Ch 6)
BWLS	Enter bandwidth loss value	MARKERS (Ch 6)
BWLS?	Output bandwidth loss value	MARKERS (Ch 6)
C12	Select 12 term calibration	CALIBRATION (Ch 5)
C8R	Select 1-path 2-port reverse path calibration	CALIBRATION (Ch 5)
C8T	Select 1-path 2-port forward path calibration	CALIBRATION (Ch 5)
CALR	Perform receiver cal for gain compression testing	GAIN COMPRESSION (Ch 9)
CAS	Clear active segmented limit vertical/horizontal definitions	LIMITS (Ch 6)
CBT	Select transmission-only calibration for both forward- and reverse-paths	CALIBRATION (Ch 5)
CC0-CC3	Enter Open Standard capacitance coefficient (0, 1, 2, or 3) for use with user-defineded connector on selected port	CALIBRATION (Ch 5)
CD	Changes the default directory (and drive)	DISK FUNCTION (Ch 8)
CCD	Collect Corrected Data in an internal buffer	INTERNAL BUFFER DATA COLLECTION (Ch 7)
CDRIVE	Selects the hard disk as the default drive	DISK FUNCTION (Ch 8)
CF2	Select female 2.4mm connector for current port	CALIBRATION (Ch 5)
CF3	Select female GPC-3.5 connector for current port	CALIBRATION (Ch 5)
CFC	Select female TNC connector for selected port	CALIBRATION (Ch 5)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
CFD	Collect Final Data in an internal buffer	INTERNAL BUFFER DATA COLLECTION (Ch 7)
CFK	Select female K connector for current port	CALIBRATION (Ch 5)
CFN	Select female Type N connector for selected port	CALIBRATION (Ch 5)
CFS	Select female SMA connector for selected port	CALIBRATION (Ch 5)
CFT	Select forward path transmission-only calibration	CALIBRATION (Ch 5)
CFV	Select female V connector for selected port	CALIBRATION (Ch 5)
CH1 - CH4	Make channel (1, 2, 3, or 4) the active channel	CHANNELS (Ch 4)
CHX?	Active channel number query	CHANNELS (Ch 4)
CL0	Enter inductive coefficient 0 for a short	CALIBRATION (Ch 5)
CL1	Enter inductive coefficient 1 for a short	CALIBRATION (Ch 5)
CL2	Enter inductive coefficient 2 for a short	CALIBRATION (Ch 5)
CL3	Enter inductive coefficient 3 for a short	CALIBRATION (Ch 5)
CLB	Clear all band definitions	MULTIPLE SOURCE CONTROL (Ch 9)
CM	Centimeters suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
CM2	Select male 2.4 mm connector for selected port	CALIBRATION (Ch 5)
CM3	Select male GPC-3.5 connector for selected port	CALIBRATION (Ch 5)
CMC	Select male TNC connector for selected port	CALIBRATION (Ch 5)
CMK	Select male K connector for selected port	CALIBRATION (Ch 5)
CMN	Select male Type N connector for selected port	CALIBRATION (Ch 5)
CMS	Select male SMA connector for selected port	CALIBRATION (Ch 5)
CMT	Centimeters suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
CMV	Select Male V connector for selected port	CALIBRATION (Ch 5)
CMX?	Calibration method query	CALIBRATION (Ch 5)
CND	Select user-defined connector for selected port	CALIBRATION (Ch 5)
CNG	Select GPC-7 connector for selected port	CALIBRATION (Ch 5)
CNTR	Enter center frequency	MEASUREMENT (Ch 4)
CNTR?	Output center frequency	MEASUREMENT (Ch 4)
COF	Turn vector error correction OFF	CALIBRATION (Ch 5)
CON	Turn vector error correction ON	CALIBRATION (Ch 5)
CON?	Vector error correction ON/OFF query	CALIBRATION (Ch 5)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
COO	Enter Open Standard offset value for user-defined connector on selected port	CALIBRATION (Ch 5)
COPY	Copy a files contents to another file	DISK FUNCTION (Ch 8)
COS	Enter Short Standard offset for user-defined connector on selected port	CALIBRATION (Ch 5)
CPYALCFH	Copy ALC Cal file from floppy to hard disk	DISK FUNCTION (Ch 8)
CPYALCHF	Copy ALC Cal file from hard to floppy disk	DISK FUNCTION (Ch 8)
CPYALLFH	Copy Combined Hardware Cal file from floppy to hard disk	DISK FUNCTION (Ch 8)
CPYALLHF	Copy Combined Hardware Cal file from hard to floppy disk	DISK FUNCTION (Ch 8)
CPYCALFH	Copy specified calibration file from floppy drive to hard drive	DISK FUNCTION (Ch 8)
CPYCALHF	Copy specified calibration file from hard drive to floppy drive	DISK FUNCTION (Ch 8)
CPYDATFH	Copy specified data file from hard drive to floppy drive	DISK FUNCTION (Ch 8)
CPYDATHF	Copy specified data file from floppy drive to hard drive	DISK FUNCTION (Ch 8)
CPYELGFH	Copy Error Log file from floppy to hard disk	DISK FUNCTION (Ch 8)
CPYELGHF	Copy Error Log file from hard to floppy disk	DISK FUNCTION (Ch 8)
CPYFREFH	Copy Frequency Cal file from floppy to hard disk	DISK FUNCTION (Ch 8)
CPYFREHF	Copy Frequency Cal file from hard to floppy disk	DISK FUNCTION (Ch 8)
CPYLOGFH	Copy Service Log file from floppy to hard disk	DISK FUNCTION (Ch 8)
CPYLOGHF	Copy Service Log file from hard to floppy disk	DISK FUNCTION (Ch 8)
CPYNRMFH	Copy specified normalization file from floppy drive to hard drive	DISK FUNCTION (Ch 8)
CPYNRMHF	Copy specified normalization file from hard drive to floppy drive	DISK FUNCTION (Ch 8)
CRB	Select reflection only calibration for both forward and reverse paths	CALIBRATION (Ch 5)
CRD	Collect Raw Data in an internal buffer	INTERNAL BUFFER DATA COLLECTION (Ch 7)
CRF	Select forward path reflection-only calibration	CALIBRATION (Ch 5)
CRR	Select reverse path reflection-only calibration	CALIBRATION (Ch 5)
CRT	Select reverse path transmission-only calibration	CALIBRATION (Ch 5)
CSB	Clear ALL status event registers.	STATUS REPORTING (Ch 7)
CSF?	Calibration start frequency query	CALIBRATION (Ch 5)
CSL	Clear error list from service log	DIAGNOSTICS (Ch 8)
CTF?	Calibration stop frequency query	CALIBRATION (Ch 5)
CTN	Continue sweeping from current frequency	MEASUREMENT (Ch 4)
CWC	Select CW frequency calibration	CALIBRATION (Ch 5)
CWD?	Outputs the current default disk drive and directory	DISK FUNCTION (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
CWF	Turn CW mode ON and set frequency	MEASUREMENT (Ch 4)
CWF?	CW mode frequency query	MEASUREMENT (Ch 4)
CWON	Turn CW mode ON at last frequency set	MEASUREMENT (Ch 4)
CWON?	CW mode ON/OFF query	MEASUREMENT (Ch 4)
CWP	Set number of trace data points to be drawn in CW mode	MEASUREMENT (Ch 4)
CWP?	Number of trace data points to be drawn in CW mode query	MEASUREMENT (Ch 4)
CXD?	Output the data collection mode currently selected	INTERNAL BUFFER DATA COLLECTION (Ch 7)
CXX?	Output calibration type	CALIBRATION (Ch 5)
CYN	Select cyan as third plane color	SYSTEM STATE (Ch 8)
D13	Display channels 1 and 3 only (Dual display)	CHANNELS (Ch 4)
D14	Display all 4 channels (Quad display)	CHANNELS (Ch 4)
D24	Display channels 2 and 4 only (Dual display)	CHANNELS (Ch 4)
DA1	Select a1 = Ra as denominator for the parameter being defined	USER DEFINED PARAMETERS (Ch 9)
DA2	Select a2 = Rb as denominator for the parameter being defined	USER DEFINED PARAMETERS (Ch 9)
DAT	Display currently measured data for active channel	DISPLAY (Ch 4)
DAT?	Trace memory display mode for active channel query	DISPLAY (Ch 4)
DATCOL	Enter the color pallete number for data	SYSTEM STATE (Ch 8)
DATCOL?	Data color number query	SYSTEM STATE (Ch 8)
DATE	Enter the system date	SYSTEM STATE (Ch 8)
DATE?	Output the system date	SYSTEM STATE (Ch 8)
DB	Decibels suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
DB1	Select b1 = Ta as denominator for the parameter being defined	USER DEFINED PARAMETERS (Ch 9)
DB2	Select b2 = Tb as denominator for the parameter being defined	USER DEFINED PARAMETERS (Ch 9)
DBL	Decibels suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
DBM	dBm suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
DBP	Select Distance Bandpass mode for active channel	DIAGNOSTICS (Ch 8)
DC1	Display channel 1 and 2 operating parameters	SYSTEM STATE (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
DC3	Display channel 3 and 4 operating parameters	SYSTEM STATE (Ch 8)
DCA	Select Automatic DC term calculation for lowpass	DIAGNOSTICS (Ch 8)
DCCTN	Resume or commence internal buffer data collection	INTERNAL BUFFER DATA COLLECTION (Ch 7)
DCCTN?	Output the internal buffer data collection resume/suspend status	INTERNAL BUFFER DATA COLLECTION (Ch 7)
DCHLD	Temporarily suspend internal buffer data collection	INTERNAL BUFFER DATA COLLECTION (Ch 7)
DCMRK	Insert a value into the internal buffer used for data collection	INTERNAL BUFFER DATA COLLECTION (Ch 7)
DCO	Select Open for DC term for lowpass	DIAGNOSTICS (Ch 8)
DCOFF	Turn internal buffer data collection mode off	INTERNAL BUFFER DATA COLLECTION (Ch 7)
DCP	Display calibration parameters	SYSTEM STATE (Ch 8)
DCP1	Display Calibration Parameters 1st page	SYSTEM STATE (Ch 8)
DCP2	Display Calibration Parameters 2nd page	SYSTEM STATE (Ch 8)
DCS	Select Short for DC term for lowpass	TIME DOMAIN (Ch 9)
DCV	Enter value for DC term for lowpass	TIME DOMAIN (Ch 9)
DCV?	Output lowpass DC term value	TIME DOMAIN (Ch 9)
DCX?	Output lowpass DC term selection	TIME DOMAIN (Ch 9)
DCZ	Select Line Impedance for DC term for lowpass	TIME DOMAIN (Ch 9)
DD0	Turn Data drawing OFF	SYSTEM STATE (Ch 8)
DD1	Turn Data drawing ON	SYSTEM STATE (Ch 8)
DD1?	Data drawing ON/OFF query	SYSTEM STATE (Ch 8)
DDX?	Output active channel domain parameter (frequency distance or time)	TIME DOMAIN (Ch 9)
DE1	Select unity as denominator for parameter being defined	USER DEFINED PARAMETERS (Ch 9)
DEC	Delete calibration/front panel setup file from floppy disk	DISK FUNCTION (Ch 8)
DECH	Delete calibration/front panel setup file from hard disk	DISK FUNCTION (Ch 8)
DED	Delete tabular data file from floppy disk	DISK FUNCTION (Ch 8)
DEDH	Delete tabular data file from hard disk	DISK FUNCTION (Ch 8)
DEG	Degrees terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
DEL	Delets a file from a disk	DISK FUNCTION (Ch 8)
DELALC	Delete ALC Cal file from floppy disk	DISK FUNCTION (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
DELALCH	Delete ALC Cal file from hard disk	DISK FUNCTION (Ch 8)
DELALL	Delete Combined Hardware Cal file from floppy disk	DISK FUNCTION (Ch 8)
DELALLH	Delete Combined Hardware Cal file from hard disk	DISK FUNCTION (Ch 8)
DELCAL	Delete Calibration/Front Panel Setup from floppy disk	DISK FUNCTION (Ch 8)
DELCALH	Delete Calibration/Front Panel Setup from hard disk	DISK FUNCTION (Ch 8)
DELDAT	Delete Tabular Data file from floppy disk	DISK FUNCTION (Ch 8)
DELDATH	Delete Tabular Data file from hard disk	DISK FUNCTION (Ch 8)
DELELG	Delete Error Log file from floppy disk	DISK FUNCTION (Ch 8)
DELELGH	Delete Error Log file from hard disk	DISK FUNCTION (Ch 8)
DELFRE	Delete Frequency Cal file from floppy disk	DISK FUNCTION (Ch 8)
DELFREH	Delete Frequency Cal file from hard disk	DISK FUNCTION (Ch 8)
DELLOG	Delete Service Log file from floppy disk	DISK FUNCTION (Ch 8)
DELLOGH	Delete Service Log file from hard disk	DISK FUNCTION (Ch 8)
DELNRM	Delete Trace Memory File from floppy disk	DISK FUNCTION (Ch 8)
DELNRMH	Delete Trace Memory File from hard disk	DISK FUNCTION (Ch 8)
DEN	Delete trace memory file from floppy disk	DISK FUNCTION (Ch 8)
DEN?	Output denominator selection for parameter being defined	USER DEFINED PARAMETERS (Ch 9)
DENH	Delete trace memory file from hard disk	DISK FUNCTION (Ch 8)
DF2	Display 2.4 mm female standard information on VNA CRT	SYSTEM STATE (Ch 8)
DF3	Display GPC-3.5 female standard information on VNA CRT	SYSTEM STATE (Ch 8)
DFC	Select discrete frequency calibration	CALIBRATION (Ch 5)
DFD	Done specifying discrete frequency ranges	CALIBRATION (Ch 5)
DFK	Display K female standard information on VNA CRT	SYSTEM STATE (Ch 8)
DFN	Display N female standard information on VNA CRT	SYSTEM STATE (Ch 8)
DFP	Display front panel instrument state on VNA CRT	SYSTEM STATE (Ch 8)
DFQ	Enter single discrete frequency	CALIBRATION (Ch 5)
DFS	Display SMA female standard information on VNA CRT	SYSTEM STATE (Ch 8)
DFT	Display TNC female standard information on VNA CRT	SYSTEM STATE (Ch 8)
DFV	Display V female standard information on VNA CRT	SYSTEM STATE (Ch 8)
DG7	Display GPC-7 male standard information on VNA CRT	SYSTEM STATE (Ch 8)
DGS	Display GPIB status information on VNA CRT	SYSTEM STATE (Ch 8)
DGT	Display and graphics test on VNA CRT	PERIPHERAL TESTS (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
DGT1	Display first CRT test pattern on VNA CRT	PERIPHERAL TESTS (Ch 8)
DGT2	Display 2nd CRT test pattern on VNA CRT	PERIPHERAL TESTS (Ch 8)
DGT3	Display 3rd CRT test pattern on VNA CRT	PERIPHERAL TESTS (Ch 8)
DIA	Select air as active dielectric	DISPLAY (Ch 4)
DIE	Enter a dielectric value	DISPLAY (Ch 4)
DIM	Select microporous teflon as active dielectric	DISPLAY (Ch 4)
DIP	Select polyethylene as dielectric type	DISPLAY (Ch 4)
DIR	Outputs a directory listing	DISK FUNCTION (Ch 8)
DIS	Display active segmented limit on active channel	LIMITS (Ch 6)
DIS?	Active segmented limits ON/OFF query	LIMITS (Ch 6)
DISKRD	Outputs the contents of a disk file	DISK FUNCTION (Ch 8)
DISKWR	Writes data to a disk file	DISK FUNCTION (Ch 8)
DIT	Select teflon (2.1) as dielectric type	DISPLAY (Ch 4)
DIV	Select Division as Trace Math for active channel	DISPLAY (Ch 4)
DIX?	Dielectric constant query	DISPLAY (Ch 4)
DLA	Select Group Delay display for active channel	DISPLAY (Ch 4)
DLP	Select Distance lowpass mode for active channel	DIAGNOSTICS (Ch 8)
DM2	Display 2.4 mm male standard information on VNA CRT	SYSTEM STATE (Ch 8)
DM3	Display GPC-3.5 male connector information on VNA CRT	SYSTEM STATE (Ch 8)
DMK	Display K male connector information on VNA CRT	SYSTEM STATE (Ch 8)
DMN	Display N male connector information on VNA CRT	SYSTEM STATE (Ch 8)
DMS	Display SMA male connector information on VNA CRT	SYSTEM STATE (Ch 8)
DMT	Display TNC male connector information on VNA CRT	SYSTEM STATE (Ch 8)
DMV	Display V male connector information on VNA CRT	SYSTEM STATE (Ch 8)
DNM	Display data normalized to Trace Memory on active channel on VCRT	DISPLAY (Ch 4)
DPI	Select distance phasor impulse mode for active channel	TIME DOMAIN (Ch 9)
DPN	Enter pen number for data plotting	HARD COPY (Ch 8)
DPR0	Turn off outputting of data pairs for single graph data types only	DATA TRANSFER (Ch 7)
DPR1	Turn on outputting of data pairs for single graph type displays	DATA TRANSFER (Ch 7)
DPRX?	Outputs the data pair mode visible/pair always	MEASUREMENT DATA (Ch 7)
DR1	Select Marker 1 as Delta Reference Marker	MARKERS (Ch 6)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
DR2	Select Marker 2 as Delta Reference Marker	MARKERS (Ch 6)
DR3	Select Marker 3 as Delta Reference Marker	MARKERS (Ch 6)
DR4	Select Marker 4 as Delta Reference Marker	MARKERS (Ch 6)
DR5	Select Marker 5 as Delta Reference Marker	MARKERS (Ch 6)
DR6	Select Marker 6 as Delta Reference Marker	MARKERS (Ch 6)
DRF	Turn delta reference mode ON	MARKERS (Ch 6)
DRL	Set diagnostic read latch	DIAGNOSTICS (Ch 8)
DRO	Turn Delta reference mode OFF	MARKERS (Ch 6)
DRO?	Delta reference marker mode ON/OFF query	MARKERS (Ch 6)
DRX?	Delta reference marker number query	MARKERS (Ch 6)
DSF0	Disable automatic filter shape factor calculation	MARKERS (Ch 6)
DSF1	Enable automatic filter shape factor calculation	MARKERS (Ch 6)
DSFX?	Output automatic filter shape factor calculation enable/disable status	MARKERS (Ch 6)
DSP	Select single channel display of active channel	CHANNELS (Ch 4)
DSP?	Channel display mode query	CHANNELS (Ch 4)
DSQ0	Disable automatic filter Q calculation	MARKERS (Ch 6)
DSQ1	Enable automatic filter Q calculation	MARKERS (Ch 6)
DSQX?	Output automatic filter Q calculation enable/disable status	MARKERS (Ch 6)
DTM	Display Measurement data and trace memory on active channel	DISPLAY (Ch 4)
DVM	Display DVM channel	DIAGNOSTICS (Ch 8)
DWG	Display waveguide standards parameters	SYSTEM STATE (Ch 8)
DWL	Set diagnostic write latch	DIAGNOSTICS (Ch 8)
ECW	Sets multiple source control equation to CW mode	MULTIPLE SOURCE CONTROL (Ch 9)
ED1	Edit Source 1 equation	MULTIPLE SOURCE CONTROL (Ch 9)
ED2	Edit Source 2 equation	MULTIPLE SOURCE CONTROL (Ch 9)
EDG	End diagnostics mode	DIAGNOSTICS (Ch 8)
EDR	Edit receiver multiple source control equation	MULTIPLE SOURCE CONTROL (Ch 9)
EDV	Set divisor for equation being edited	MULTIPLE SOURCE CONTROL (Ch 9)
EDV?	Divisor for equation being edited query	MULTIPLE SOURCE CONTROL (Ch 9)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
EKT	External keyboard test	PERIPHERAL TESTS (Ch 8)
EML	Set multiplier for equation being edited	MULTIPLE SOURCE CONTROL (Ch 9)
EML?	Multiplier for equation being edited query	MULTIPLE SOURCE CONTROL (Ch 9)
EOS	Set offset frequency for equation being edited	MULTIPLE SOURCE CONTROL (Ch 9)
EOS?	Offset frequency for equation being edited query	MULTIPLE SOURCE CONTROL (Ch 9)
ESW	Sets the multiple source control equation in the sweep mode	MULTIPLE SOURCE CONTROL (Ch 9)
EXD	Display external A/D input	DIAGNOSTICS (Ch 8)
EXISTD?	Outputs disk directory existence information	DISK FUNCTION (Ch 8)
EXISTF?	Outputs disk file existence information	DISK FUNCTION (Ch 8)
EXW?	Multiple source sweep/CW flag for equation being edited query	MULTIPLE SOURCE CONTROL (Ch 9)
FCW0	Turn fast CW measurement mode off	FAST CW (Ch 7)
FCW1	Turn fast CW measurement mode on	FAST CW (Ch 7)
FCWX?	Output the fast CW measurement mode on/off status	FAST CW (Ch 7)
FDH0	Specifies that arbitrary block header length will be variable depending on the block size	TRANSMISSION METHODS (Ch 7)
FDH1	Specifies that all arbitrary block header lengths will be 11 characters	TRANSMISSION METHODS (Ch 7)
FDH2	Eliminates the arbitrary block header for the current program messages	TRANSMISSION METHODS (Ch 7)
FDHX?	Outputs the arbitrary block format mode currently active	TRANSMISSION METHODS (Ch 7)
FFD	Send a form feed command to the printer (and stop print/plot action).	HARD COPY (Ch 8)
FGT	Select frequency with time gate mode for active channel	TIME DOMAIN (Ch 9)
FHI	Set data points to 1601	MEASUREMENT (Ch 4)
FIL	Fill defined discrete frequency range	MEASUREMENT (Ch 5)
FLC	Source frequency linearity internal calibration	DIAGNOSTICS (Ch 8)
FLO	Set data points to 101	MEASUREMENT (Ch 4)
FLTBW?	Output filter bandwidth	MARKERS (Ch 6)
FLTC?	Output filter center frequency	MARKERS (Ch 6)
FLTL?	Output filter loss at reference value	MARKERS (Ch 6)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
FLTQ?	Output filter Q	MARKERS (Ch 6)
FLTS?	Output filter shape factor	MARKERS (Ch 6)
FMA	Select ASCII data transfer format	DATA TRANSFER (Ch 7)
FMB	Select IEEE754 64 bit data transfer format	DATA TRANSFER (Ch 7)
FMC	Select IEEE754 32 bit data transfer format	DATA TRANSFER (Ch 7)
FME	Set data points to 401	MEASUREMENT (Ch 4)
FMKR	Select filter parameters marker mode	MARKERS (Ch 6)
FMT0	Selects normal ASCII data element delimiting	TRANSMISSION METHODS (Ch 7)
FMT1	Selects enhanced ASCII data element delimiting	TRANSMISSION METHODS (Ch 7)
FMTX?	Outputs the ASCII data element delimiting mode, normal or enhanced	TRANSMISSION METHODS (Ch 7)
FMX?	Outputs the data output mode FMA, FMB, or FMC	DATA TRANSFER (Ch 7)
FOF	Blank frequency information	SYSTEM STATE (Ch 8)
FON	Turns on frequency display and hard copy output	SYSTEM STATE (Ch 8)
FOX?	Output frequency blanking ON/OFF query	SYSTEM STATE (Ch 8)
FP0	Turn flat power correction OFF	MEASUREMENT (Ch 4)
FP1	Turn flat power correction ON	MEASUREMENT (Ch 4)
FPT	Front panel keypad test	PERIPHERAL TESTS (Ch 8)
FPX?	Flat power correction ON/OFF status query	DIAGNOSTICS (Ch 8)
FQD	Select Frequency Domain for active channel	TIME DOMAIN (Ch 9)
FRC	Clear all defined discrete frequency ranges	MEASUREMENT (Ch 4)
FRI	Set discrete frequency fill range increment frequency	MEASUREMENT (Ch 4)
FRP	Set discrete frequency fill range number of points	MEASUREMENT (Ch 4)
FRS	Set discrete frequency fill range start frequency	MEASUREMENT (Ch 4)
GCMP	Enter gain compression point search value	GAIN COMPRESSION (Ch 9)
GCMP?	Output gain compression point search value	GAIN COMPRESSION (Ch 9)
GCT	Set gate center value for active channel time/distance domain	TIME DOMAIN (Ch 9)
GCT?	Output gate center value	TIME DOMAIN (Ch 9)
GDS	Show gate symbols display on active channel	TIME DOMAIN (Ch 9)
GHZ	Gigahertz suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
GLS	Select low sidelobe gate shape	TIME DOMAIN (Ch 9)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
GMS	Select minimum sidelobe gate shape	TIME DOMAIN (Ch 9)
GNM	Select nominal gate shape	TIME DOMAIN (Ch 9)
GOF	Turn off gating on active channel	TIME DOMAIN (Ch 9)
GOF?	Output gating mode on active channel	TIME DOMAIN (Ch 9)
GON	Turn on gating on active channel	TIME DOMAIN (Ch 9)
GPN	Enter pen number for graticule	HARD COPY (Ch 8)
GRF?	Output graph type for active channel	DISPLAY (Ch 4)
GRT	Select rectangular gate shape	TIME DOMAIN (Ch 9)
GRTCOL	Enter the color number for the graticule	SYSTEM STATE (Ch 8)
GRTCOL?	Graticule color number query	SYSTEM STATE (Ch 8)
GSN	Set gate span value	TIME DOMAIN (Ch 9)
GSN?	Output gate span value	TIME DOMAIN (Ch 9)
GSP	Set gate stop value	TIME DOMAIN (Ch 9)
GSP?	Output gate stop value	TIME DOMAIN (Ch 9)
GST	Enter gate start value	TIME DOMAIN (Ch 9)
GST?	Output gate start value	TIME DOMAIN (Ch 9)
GSX?	Output gate shape	TIME DOMAIN (Ch 9)
HC0	Disable Internal IF calibration	SYSTEM STATE (Ch 8)
HC1	Enable Internal IF calibration and trigger an IF calibration	SYSTEM STATE (Ch 8)
HCT	Trigger an IF calibration	SYSTEM STATE (Ch 8)
HCX?	Internal IF calibration enabled/disabled query	SYSTEM STATE (Ch 8)
HD0	Turn off tabular data headers and page formatting	HARD COPY (Ch 8)
HD1	Turn on tabular data headers and page formatting	HARD COPY (Ch 8)
HID	Hide active segmented limit on active channel	LIMITS (Ch 6)
HLD	Hold sweep at current point	MEASUREMENT (Ch 4)
HLD?	Hold mode query	MEASUREMENT (Ch 4)
HPN	Enter pen number for header	HARD COPY (Ch 8)
HZ	Hertz suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
IARF	Enter Adapter Removal files from the GPIB and calibrate	ADAPTER REMOVAL (Ch 9)
IC1	Input Calibration Coefficient 1	REMOTE ONLY (Ch 7)
IC10	Input Calibration Coefficient 10	REMOTE ONLY (Ch 7)
IC11	Input Calibration Coefficient 11	REMOTE ONLY (Ch 7)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
IC12	Input Calibration Coefficient 12	REMOTE ONLY (Ch 7)
IC2	Input Calibration Coefficient 2	REMOTE ONLY (Ch 7)
IC3	Input Calibration Coefficient 3	REMOTE ONLY (Ch 7)
IC4	Input Calibration Coefficient 4	REMOTE ONLY (Ch 7)
IC5	Input Calibration Coefficient 5	REMOTE ONLY (Ch 7)
IC6	Input Calibration Coefficient 6	REMOTE ONLY (Ch 7)
IC7	Input Calibration Coefficient 7	REMOTE ONLY (Ch 7)
IC8	Input Calibration Coefficient 8	REMOTE ONLY (Ch 7)
IC9	Input Calibration Coefficient 9	REMOTE ONLY (Ch 7)
ICA	Input calibration coefficient A	REMOTE ONLY (Ch 7)
ICB	Input calibration coefficient B	REMOTE ONLY (Ch 7)
ICC	Input calibration coefficient C	REMOTE ONLY (Ch 7)
ICD	Input corrected data for active channel S-parameter	REMOTE ONLY (Ch 7)
ICF	Input Front Panel Setup and Calibration data	REMOTE ONLY (Ch 7)
ICL	Input all calibration coefficients	REMOTE ONLY (Ch 7)
IEM	Input Extended Event Status Enable Register	REMOTE ONLY (Ch 7)
IF1	Set IF bandwidth to 10 Hz	ENHANCEMENT (Ch 4)
IF2	Set IF bandwidth to 100Hz	ENHANCEMENT (Ch 4)
IF3	Set IF bandwidth to 1kHz	ENHANCEMENT (Ch 4)
IF4	Set IF bandwidth to 10kHz	ENHANCEMENT (Ch 4)
IFA	Set IF bandwidth to maximum (10kHz)	ENHANCEMENT (Ch 4)
IFB	Run 1st IF bandpass test	DIAGNOSTICS (Ch 8)
IFD	Input final (graph display format) data for S-parameter of active channel	REMOTE ONLY (Ch 7)
IFM	Select minimum IF bandwidth (10 Hz)	ENHANCEMENT (Ch 4)
IFN	Select normal IF bandwidth (1 kHz)	ENHANCEMENT (Ch 4)
IFP	Input current front panel setup	REMOTE ONLY (Ch 7)
IFR	Select reduced IF bandwidth (100 Hz)	ENHANCEMENT (Ch 4)
IFV	Input frequency list	MEASUREMENT POINTS (Ch 7)
IFX?	IF bandwidth query	ENHANCEMENT (Ch 4)
IHDW	Enter Hardware calibration data from the GPIB	MISCELLANEOUS (Ch 7)
IKIT	Enter calibration kit data from the GPIB	MISCELLANEOUS (Ch 7)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
ILM	Input Limits Status Enable Register	REMOTE ONLY (Ch 7)
IMG	Select Imaginary display for active channel	DISPLAY (Ch 4)
IMU	Imaginary units terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
INRM	Enter normalization data from the GPIB	MISCELLANEOUS (Ch 7)
INT	Initialize (format) floppy disk	DISK FUNCTION (Ch 8)
IPM	Set Service Request Enable Register	REMOTE ONLY (Ch 7)
IS1	Input front panel setup 1	REMOTE ONLY (Ch 7)
IS10	Input front panel setup 10	REMOTE ONLY (Ch 7)
IS2	Input front panel setup 2	REMOTE ONLY (Ch 7)
IS3	Input front panel setup 3	REMOTE ONLY (Ch 7)
IS4	Input front panel setup 4	REMOTE ONLY (Ch 7)
IS5	Input front panel setup 5	REMOTE ONLY (Ch 7)
IS6	Input front panel setup 6	REMOTE ONLY (Ch 7)
IS7	Input front panel setup 7	REMOTE ONLY (Ch 7)
IS8	Input front panel setup 8	REMOTE ONLY (Ch 7)
IS9	Input front panel setup 9	REMOTE ONLY (Ch 7)
ISC	Select inverted compressed Smith Chart for active channel	DISPLAY (Ch 4)
ISE	Select inverted expanded Smith chart for active channel	DISPLAY (Ch 4)
ISF	Exclude isolation measurement step during calibration	CALIBRATION (Ch 5)
ISM	Select normal inverted Smith chart for active channel	DISPLAY (Ch 4)
ISN	Include isolation measurement step during calibration	CALIBRATION (Ch 5)
KEC	Keep existing calibration data and return to measurement mode (abort calibration process)	CALIBRATION (Ch 5)
KHZ	Kilohertz terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
L1C	Perform LO1 internal calibration	DIAGNOSTICS (Ch 8)
L2C	Perform LO2 internal calibration	DIAGNOSTICS (Ch 8)
LA1	Select a1 = Ra as phase lock for parameter being defined	USER DEFINED PARAMETERS (Ch 9)
LA2	Select a2 = Rb as phase lock for parameter being defined	USER DEFINED PARAMETERS (Ch 9)
LAND	Select landscape mode for output plot	HARD COPY (Ch 8)
LAX?	Output phase lock selection for the parameter being defined	USER DEFINED PARAMETERS (Ch 9)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
LAX?	Current sweep direction query	MEASUREMENT (Ch 4)
LAYCOL	Enter the color number for overlay data	SYSTEM STATE (Ch 8)
LAYCOL?	Overlay data color number query	SYSTEM STATE (Ch 8)
LB0	Turn limits testing beep on failure OFF	LIMITS (Ch 6)
LB1	Turn on limits pass/fail testing beeper	LIMITS (Ch 6)
LBX?	Limits testing beeper enabled/disabled query	LIMITS (Ch 6)
LCM	Select LRL/M (Line Reflect Line/Match) calibration method	CALIBRATION (Ch 5)
LDARF	Load adapter removal files from disk and calibrate	DISK FUNCTION (Ch 8)
LDT	Enter date (or time) for data printout label	HARD COPY (Ch 8)
LDT?	Output label string for date/time	HARD COPY (Ch 8)
LDT0	Disable printing date/time in hard copy output	HARD COPY (Ch 8)
LDT1	Enable printing date/time in hard copy output	HARD COPY (Ch 8)
LFD	Set limit frequency read-out delta value for active channel	LIMITS (Ch 6)
LFD?	Output limit frequency readout delta value	LIMITS (Ch 6)
LFD2	Enters limit frequency readout delta value for bottom graph	LIMITS (Ch 6)
LFD2?	Outputs limit frequency readout delta value for bottom graph	LIMITS (Ch 6)
LFP	Select limit frequency read-out on active channel for phase displays	LIMITS (Ch 6)
LFR	Select limit frequency readout for active channel	LIMITS (Ch 6)
LID	Enter label string for device ID	REMOTE ONLY (Ch 7)
LID?	Output label string for device ID	REMOTE ONLY (Ch 7)
LIN	Select Linear magnitude display for active channel	DISPLAY (Ch 4)
LKS0	Disable lock search mode	DIAGNOSTICS (Ch 8)
LKS1	Enable lock search mode	DIAGNOSTICS (Ch 8)
LKT	Load calibration kit information from floppy disk	DISK FUNCTION (Ch 8)
LL1	Enter length of line 1 for LRL calibration	CALIBRATION (Ch 5)
LL2	Enter length of line 2 for LRL calibration	CALIBRATION (Ch 5)
LL3	Enter length of line 3 for LRL calibration	CALIBRATION (Ch 5)
LLM?	Output limit line display mode, single or segmented	LIMITS (Ch 6)
LLO	Turn on lower limit for active channel and set to value	LIMITS (Ch 6)
LLO?	Lower limit setting for active channel query	LIMITS (Ch 6)
LLO2	Turns on lower limit and set to value for bottom graph	LIMITS (Ch 6)
LLO2?	Outputs lower limit value for bottom graph on active channel	LIMITS (Ch 6)
LLZ	Enter line impedance for LRL calibration	CALIBRATION (Ch 5)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
LM2	Select a match for the second device during a LRM type calibration	CALIBRATION (Ch 5)
LM3	Select a match for the third device during a LRM type calibration	CALIBRATION (Ch 5)
LMS	Enter model/serial number for data printout label	HARD COPY (Ch 8)
LMS?	Output label string for model/serial number	REMOTE ONLY (Ch 7)
LNM	Enter label string for operator's name	REMOTE ONLY (Ch 7)
LNM?	Output label string for operator's name	REMOTE ONLY (Ch 7)
LO11	Run LO1 phase-lock voltage test	DIAGNOSTICS (Ch 8)
LO12	Run LO1 D/A voltage test	DIAGNOSTICS (Ch 8)
LO21	Run LO2 main phase lock voltage test	DIAGNOSTICS (Ch 8)
LO22	Run LO2 offset phase lock voltage test	DIAGNOSTICS (Ch 8)
LO23	Run LO2 dds phase lock voltage test	DIAGNOSTICS (Ch 8)
LO24	Run LO2 main d/a voltage test	DIAGNOSTICS (Ch 8)
LO25	Run LO2 offset d/a voltage test	DIAGNOSTICS (Ch 8)
LOC	Enter label string for operator's comments for data printout	HARD COPY (Ch 8)
LOC?	Output label string for operator's comment	HARD COPY (Ch 8)
LOF	Turn off limits display	LIMITS (Ch 6)
LOGO?	Output hard copy logo selection standard/user defined	HARD COPY (Ch 8)
LOGO0	Turn hard copy and plotter logo OFF	HARD COPY (Ch 8)
LOGO1	Turn hard copy and plotter logo ON	HARD COPY (Ch 8)
LOGOS	Select standard Wiltron logo for hard copy prints or plots	HARD COPY (Ch 8)
LOGOU	Select user defined logo for hard copy prints or plots	HARD COPY (Ch 8)
LOGOX?	Output hard copy and plotter logo printing on/off status	HARD COPY (Ch 8)
LOL0	Turn off lower limit on active channel	LIMITS (Ch 6)
LOL1	Turn on lower limit at current value on active channel	LIMITS (Ch 6)
LOL20	Turn lower limit off for bottom graph on active channel	LIMITS (Ch 6)
LOL21	Turn lower limit on at current value for bottom graph on active channel	LIMITS (Ch 6)
LOL2X?	Lower limit for bottom graph on/off query	LIMITS (Ch 6)
LOLX?	Lower limit ON/OFF query	LIMITS (Ch 6)
LON	Turn on normal (non-segmented) limits display	LIMITS (Ch 6)
LON?	Normal (non-segmented) limits display ON/OFF query	LIMITS (Ch 6)
LPF?	Channel 1-4 limit test failure query	LIMITS (Ch 6)
LPF1?	Channel 1 limit test failure query	LIMITS (Ch 6)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
LPF2?	Channel 2 limit test failure query	LIMITS (Ch 6)
LPF3?	Channel 3 limit test failure query	LIMITS (Ch 6)
LPF4?	Channel 4 limit test failure query	LIMITS (Ch 6)
LPH	Select linear magnitude and phase display for active channel	DISPLAY (Ch 4)
LPI	Select lowpass impulse response for active channel	TIME DOMAIN (Ch 9)
LPS	Select lowpass step response for active channel	TIME DOMAIN (Ch 9)
LPSX?	Output lowpass response (impulse or step) for active channel	TIME DOMAIN (Ch 9)
LR2	Specify 2 line LRL calibration	CALIBRATION (Ch 5)
LR3	Specify 3 line LRL calibration	CALIBRATION (Ch 5)
LS1	Set lower segmented limit 1 as the active segment	LIMITS (Ch 6)
LS10	Set lower segmented limit 10 as the active segment	LIMITS (Ch 6)
LS2	Set lower segmented limit 2 as the active segment	LIMITS (Ch 6)
LS3	Set lower segmented limit 3 as the active segment	LIMITS (Ch 6)
LS4	Set lower segmented limit 4 as the active segment	LIMITS (Ch 6)
LS5	Set lower segmented limit 5 as the active segment	LIMITS (Ch 6)
LS6	Set lower segmented limit 6 as the active segment	LIMITS (Ch 6)
LS7	Set lower segmented limit 7 as the active segment	LIMITS (Ch 6)
LS8	Set lower segmented limit 8 as the active segment	LIMITS (Ch 6)
LS9	Set lower segmented limit 9 as the active segment	LIMITS (Ch 6)
LSB	Select least significant byte first binary transfer	LIMITS (Ch 6)
LSEG	Select segmented limit line display mode	LIMITS (Ch 6)
LSNG	Select single limit line display mode	LIMITS (Ch 6)
LSX?	Output active segmented limit	LIMITS (Ch 6)
LT0	Turn off limits pass/fail testing	LIMITS (Ch 6)
LT1	Turn limits testing ON	LIMITS (Ch 6)
LT1?	Limits pass/fail testing ON/OFF query	LIMITS (Ch 6)
LTC	Select coaxial transmission line for calibration	CALIBRATION (Ch 5)
LTST	Display the limits testing menu	LIMITS (Ch 6)
LTU	Select microstrip transmission line for calibration	CALIBRATION (Ch 5)
LTW	Select waveguide transmission line for calibration	CALIBRATION (Ch 5)
LTX?	Calibration transmission line type query	CALIBRATION (Ch 5)
LUP	Turn on upper limit and set to value	LIMITS (Ch 6)
LUP?	Output upper limit value for active channel	LIMITS (Ch 6)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
LUP2	Turn on upper limit and set to value for bottom graph	LIMITS (Ch 6)
LUP2?	Outputs upper limit value for bottom graph on active channel	LIMITS (Ch 6)
LVH	Turn on limits pass/fail testing rear panel TTL high voltage output	LIMITS (Ch 6)
LVL	Turn on limits pass/fail testing rear panel TTL low voltage output	LIMITS (Ch 6)
LVX?	Limits testing TTL level setting query	LIMITS (Ch 6)
M	Meters suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
M1C	Marker 1 CW frequency	MARKERS (Ch 6)
M1E	Marker 1 sweep/zoom end frequency, time, or distance	MARKERS (Ch 6)
M1S	Marker 1 sweep/zoom start frequency, time, or distance	MARKERS (Ch 6)
M2C	Marker 2 CW frequency	MARKERS (Ch 6)
M2E	Marker 2 sweep/zoom end frequency, time, or distance	MARKERS (Ch 6)
M2S	Marker 2 sweep/zoom start frequency, time, or distance	MARKERS (Ch 6)
M3C	Marker 3 CW frequency	MARKERS (Ch 6)
M3E	Marker 3 sweep/zoom end frequency, time, or distance	MARKERS (Ch 6)
M3S	Marker 3 sweep/zoom start frequency, time, or distance	MARKERS (Ch 6)
M4C	Marker 4 CW frequency	MARKERS (Ch 6)
M4E	Marker 4 sweep/zoom end frequency, time, or distance	MARKERS (Ch 6)
M4S	Marker 4 sweep/zoom start frequency, time, or distance	MARKERS (Ch 6)
M5C	Marker 5 CW frequency	MARKERS (Ch 6)
M5E	Marker 5 sweep/zoom end frequency, time, or distance	MARKERS (Ch 6)
M5S	Marker 5 sweep/zoom start frequency, time, or distance	MARKERS (Ch 6)
M6C	Marker 6 CW frequency	MARKERS (Ch 6)
M6E	Marker 6 sweep/zoom end frequency, time, or distance	MARKERS (Ch 6)
M6S	Marker 6 sweep/zoom start frequency, time, or distance	MARKERS (Ch 6)
MAG	Select log magnitude display for active channel	DISPLAY (Ch 4)
MAT	Select matched reflection device (open/open, short/short) measurement sequence for standard calibration	CALIBRATION (Ch 5)
MD	Create an new subdirectory on the hard disk or floppy drive	DISK FUNCTION (Ch 8)
MEM	Display Trace Memory on active channel	DISPLAY (Ch 4)
MFGCT	Start a multiple frequency swept power gain compression test	GAIN COMPRESSION (Ch 9)
MHZ	Megahertz terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
MIN	Select Subtraction as Trace Math for active channel	DISPLAY (Ch 4)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
MIX	Select mixed reflection device (open/short, short/open) measurement sequence for standard calibration	CALIBRATION (Ch 5)
MK1	Turn on Marker 1 and set to frequency, time or distance	MARKERS (Ch 6)
MK1?	Marker 1-6 setting query	MARKERS (Ch 6)
MK2	Turn on Marker 2 and set to frequency, time or distance	MARKERS (Ch 6)
MK2?	Output Marker 2 frequency, time or distance	MARKERS (Ch 6)
MK3	Turn on Marker 3 and set to frequency, time or distance	MARKERS (Ch 6)
MK3?	Output Marker 3 frequency, time or distance	MARKERS (Ch 6)
MK4	Turn on Marker 4 and set to frequency, time or distance	MARKERS (Ch 6)
MK4?	Output Marker 4 frequency, time or distance	MARKERS (Ch 6)
MK5	Turn on Marker 5 and set to frequency, time or distance	MARKERS (Ch 6)
MK5?	Output Marker 5 frequency, time or distance	MARKERS (Ch 6)
MK6	Turn on Marker 6 and set to frequency, time or distance	MARKERS (Ch 6)
MK6?	Output Marker 6 frequency, time or distance	MARKERS (Ch 6)
MKRC	Select interpolated marker functionality	MARKERS (Ch 6)
MKRCOL	Enter the color number for the markers, time or distance	SYSTEM STATE (Ch 8)
MKRCOL?	Markers color number query	SYSTEM STATE (Ch 8)
MKRD	Select discrete marker functionality	MARKERS (Ch 6)
MKRX?	Output interpolated/discrete marker functionality	MARKERS (Ch 6)
MKSL	Marker search left	MARKERS (Ch 6)
MKSR	Marker search right	MARKERS (Ch 6)
MKT0	Turn marker tracking OFF	MARKERS (Ch 6)
MKT1	Turn marker tracking ON	MARKERS (Ch 6)
MKTX?	Output marker tracking ON/OFFstatus	MARKERS (Ch 6)
MM	Millimeters suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
MMN	Set active marker to minimum trace value on active channel	MARKERS (Ch 6)
MMT	Millimeter terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
MMX	Set active marker to maximum trace value on active channel	MARKERS (Ch 6)
MNUCOL	Enter the color number for the menu headers	SYSTEM STATE (Ch 8)
MNUCOL?	Menu header color number query	SYSTEM STATE (Ch 8)
MO1	Turn Off marker 1	MARKERS (Ch 6)
MO2	Turn Off marker 2	MARKERS (Ch 6)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
MO3	Turn Off marker 3	MARKERS (Ch 6)
MO4	Turn Off marker 4	MARKERS (Ch 6)
MO5	Turn Off marker 5	MARKERS (Ch 6)
MO6	Turn Off marker 6	MARKERS (Ch 6)
MOF	Turn Marker display OFF	MARKERS (Ch 6)
MON	Turn Marker display ON	MARKERS (Ch 6)
MON?	Markers displays ON/OFF query	MARKERS (Ch 6)
MPH	Select log magnitude and phase display for active channel	DISPLAY (Ch 4)
MPN	Enter pen number for markers and limits	REMOTE ONLY (Ch 7)
MR1	Select Readout marker 1	MARKERS (Ch 6)
MR1?	Output marker 1 ON/OFF status	MARKERS (Ch 6)
MR2	Select Readout marker 2	MARKERS (Ch 6)
MR2?	Output marker 2 ON/OFF status	MARKERS (Ch 6)
MR3	Select Readout marker 3	MARKERS (Ch 6)
MR3?	Output marker 3 ON/OFF status	MARKERS (Ch 6)
MR4	Select Readout marker 4	MARKERS (Ch 6)
MR4?	Output marker 4 ON/OFF status	MARKERS (Ch 6)
MR5	Select Readout marker 5	MARKERS (Ch 6)
MR5?	Output marker 5 ON/OFF status	MARKERS (Ch 6)
MR6	Select Readout marker 6	MARKERS (Ch 6)
MR6?	Output marker 6 ON/OFF status	MARKERS (Ch 6)
MRR	Restore original sweep range (unzoom marker sweep)	TIME DOMAIN (Ch 9)
MRX?	Output active marker number	MARKERS (Ch 6)
MS	Milliseconds suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
MS0	Turn Multiple Source mode OFF	MULTIPLE SOURCE CONTROL (Ch 9)
MS1	Turn Multiple Source mode ON	MULTIPLE SOURCE CONTROL (Ch 9)
MSB	Select most significant byte first binary data transfer format	REMOTE ONLY (Ch 7)
MSD	Select multiple Source DEFINE mode	MULTIPLE SOURCE CONTROL (Ch 9)
MSFH	Enter high loss value for shape factor calculation	MARKERS (Ch 6)
MSFH?	Output high loss value for shape factor calculation	MARKERS (Ch 6)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
MSFL	Enter low loss value for shape factor calculation	MARKERS (Ch 6)
MSFL?	Output low loss value for shape factor calculation	MARKERS (Ch 6)
MSR0	Select 0 as ref for marker search and bandwidth calculation	MARKERS (Ch 6)
MSRD	Select delta ref marker as ref for marker search and bandwidth calculation	MARKERS (Ch 6)
MSRM	Select max as ref for marker search and bandwidth calculation	MARKERS (Ch 6)
MSRX?	Output ref selection for marker search and bandwidth calculation	MARKERS (Ch 6)
MSX?	Multiple source ON/OFF/DEFINE mode query	MULTIPLE SOURCE CONTROL (Ch 9)
MTH?	Output trace math math type	DISPLAY (Ch 4)
MTR	Meter terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
MUL	Select multiplication as trace math for active channel	DISPLAY (Ch 4)
MV	Millivolt suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
NA1	Select a1 = Ra as numerator for the parameter being defined	USER DEFINED PARAMETERS (Ch 9)
NA2	Select a2 = Rb as numerator for the parameter being defined	USER DEFINED PARAMETERS (Ch 9)
NB1	Select b1 = Ta as numerator for the parameter being defined	USER DEFINED PARAMETERS (Ch 9)
NB2	Select b2 = Tb as numerator for the parameter being defined	USER DEFINED PARAMETERS (Ch 9)
NCS	Go to next calibration step	CALIBRATION (Ch 5)
NMKR	Select normal markers on active channel marker mode	MARKERS (Ch 6)
NOC	Select normal calibration data points	CALIBRATION (Ch 5)
NOFST	Enter the nominal offset value for the gain in the external path	GAIN COMPRESSION (Ch 9)
NOFST?	Output the nominal offset value for the gain in the external path	GAIN COMPRESSION (Ch 9)
NP101	Set data points to 101	MEASUREMENT (Ch 4)
NP1601	Set data points to 1601	MEASUREMENT (Ch 4)
NP201	Set data points to 201	MEASUREMENT (Ch 4)
NP401	Set data points to 401	MEASUREMENT (Ch 4)
NP51	Set data points to 51	MEASUREMENT (Ch 4)
NP801	Set data points to 801	MEASUREMENT (Ch 4)
NRD	Display non-ratioed parameters on four channels	DIAGNOSTICS (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
NRMS	Normalize S21 for gain compression testing	GAIN COMPRESSION (Ch 9)
NS	Nanoseconds suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
NSC	Nanoseconds suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
NU1	Select unity as numerator for parameter being defined	USER DEFINED PARAMETERS (Ch 9)
NUM?	Output numerator selection for parameter being defined	USER DEFINED PARAMETERS (Ch 9)
OAM1	Output channel 1 active marker value	REMOTE ONLY (Ch 7)
OAM2	Output channel 2 active marker value	REMOTE ONLY (Ch 7)
OAM3	Output channel 3 active marker value	REMOTE ONLY (Ch 7)
OAM4	Output channel 4 active marker value	REMOTE ONLY (Ch 7)
OBMB	Output screen dump bit map in black and white	HARD COPY (Ch 8)
OBMC	Output screen dump bit map in color	HARD COPY (Ch 8)
OC1-OC12	Output calibration coefficients 1-12	REMOTE ONLY (Ch 7)
OCA, OCB, OCC	Output calibration coefficients A, B, or C	REMOTE ONLY (Ch 7)
OCD	Output corrected data for active channel's S-parameter	REMOTE ONLY (Ch 7)
OCF	Output calibration information and front panel setup	REMOTE ONLY (Ch 7)
OCL	Ouput all calibration coefficients	REMOTE ONLY (Ch 7)
OCM	Select offset short calibration method	CALIBRATION (Ch 5)
OCS	Output the internall buffer collected data	INTERNAL BUFFER DATA COLLECTION (Ch 7)
ODAT	Output tabular data	HARD COPY (Ch 8)
ODR	Output floppy disk directory	REMOTE ONLY (Ch 7)
ODRH	Output hard disk directory	REMOTE ONLY (Ch 7)
ODV	Output converted distance values for time domain sweep points	MEASUREMENT POINTS (Ch 7)
OEB	Output Extended Event Status Register	STATUS REPORTING (Ch 7)
OEL	Output list of error messages	ERROR REPORTING (Ch 7)
OEM	Output Extended Event Status Enable Register	STATUS REPORTING (Ch 7)
OFD	Output final (display format) data for active channel's S-parameter	REMOTE ONLY (Ch 7)
OFF	Set scaling offset value on active channel	DISPLAY (Ch 4)
OFF?	Scaling offset value on active channel query	DISPLAY (Ch 4)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
OFF2	Sets offset level on bottom graph of active channel display	DISPLAY (Ch 4)
OFF2?	Outputs offset level on bottom graph of active channel display	DISPLAY (Ch 4)
OFP	Output current front panel setup	REMOTE ONLY (Ch 7)
OFV	Output frequency values for current sweep	MEASUREMENT POINTS (Ch 7)
OGCFD	Output gain compression final data to GPIB	MEASUREMENT DATA (Ch 7)
OGCFV	Output gain compression frequency values	MEASUREMENT POINTS (Ch 7)
OGCTXT	Output gain compression final data in text format	HARD COPY (Ch 8)
OGE	Output Extended Description of current GPIB error.	ERROR REPORTING (Ch7)
OGL	Output Extended Description of previous GPIB error.	ERROR REPORTING (Ch7)
OHDW	Output hardware callibration data to the GPIB	MISCELLANEOUS (Ch 7)
OHGL	Output HPGL format data to the GPIB	HARD COPY (Ch 8)
OHM	Ohms suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
OID	Output instrument information string	REMOTE ONLY (Ch 7)
OLB	Output limits pass/fail testing status byte.	STATUS REPORTING (Ch 7)
OLM	Output limits status byte enable	REMOTE ONLY (Ch 7)
OM1-OM6	Output marker 1-6 value for active channel	REMOTE ONLY (Ch 7)
ONCP	Outputs the number of data points in the current calibration setup	CALIBRATION (Ch 5)
ONCT	Output number of terms for current calibration	CALIBRATION (Ch 5)
ONDF	Output the current number of discrete fill frequencies	MEASUREMENT (Ch 4)
ONE	Output number of error messages stored in service log	ERROR REPORTING (Ch 7)
ONP	Output number of points currently being measured	MEASUREMENT POINTS (Ch 7)
ONPV	Output the number of power sweep power values	MEASUREMENT POINTS (Ch 7)
ONRM	Output normalization data for the active channel	MISCELLANEOUS (Ch 7)
OPB	Output Primary Status Byte	IEEE 488.2 (Ch 7)
OPSV	Output power sweep power values	MEASUREMENT POINTS (Ch 7)
ORD	Output raw data for active channel's parameter	REMOTE ONLY (Ch 7)
OS1-OS10	Output stored front panel setup 1 to 10	REMOTE ONLY (Ch 7)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
OS11C	Output corrected S11 data	MEASUREMENT DATA (Ch 7)
OS11R	Output raw S11 data	MEASUREMENT DATA (Ch 7)
OS12C	Output corrected S12 data	MEASUREMENT DATA (Ch 7)
OS12R	Output raw S12 data	MEASUREMENT DATA (Ch 7)
OS21C	Output corrected S21 data	MEASUREMENT DATA (Ch 7)
OS21R	Output raw S21 data	MEASUREMENT DATA (Ch 7)
OS22C	Output corrected S22 data	MEASUREMENT DATA (Ch 7)
OS22R	Output raw S22 data	MEASUREMENT DATA (Ch 7)
OS2P	Output S2P format data to the GPIB	HARD COPY (Ch 8)
OSL	Output service log	REMOTE ONLY (Ch 7)
OTV	Output time values for time domain measurement points	MEASUREMENT POINTS (Ch 7)
OTXT	Output text format data to GPIB	HARD COPY (Ch 8)
P1C	Select port 1 for connector specification	CALIBRATION (Ch 5)
P1C?	Port 1 connector specification query	CALIBRATION (Ch 5)
P1P?	Output power at port 1 query	CALIBRATION (Ch 5)
P2C	Select port 2 for connector specification	CALIBRATION (Ch 5)
P2C?	Select port 2 for connector specification query	CALIBRATION (Ch 5)
PBL	Select 1/4-size plot bottom left corner	HARD COPY (Ch 8)
PBR	Select 1/4-size plot bottom right corner	HARD COPY (Ch 8)
PCP	Select 'measurement phase' polar chart mode	DISPLAY (Ch 4)
PCS	Select 'sweep position' polar chart mode for active channel	DISPLAY (Ch 4)
PCX?	Polar chart position/phase mode query	DISPLAY (Ch 4)
PDR	Print directory listing of the floppy drive	DISK FUNCTION (Ch 8)
PDRH	Print directory listing of the hard drive	DISK FUNCTION (Ch 8)
PEL	Print the error log	DIAGNOSTICS (Ch 8)
PFL	Select full-size plot	HARD COPY (Ch 8)
PFS	Print full screen image	HARD COPY (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
PGR	Print graph area screen image	HARD COPY (Ch 8)
PGT	Plot graticule	DISK FUNCTION (Ch 8)
PHA	Select phase display for active channel	DISPLAY (Ch 4)
PHO	Set phase scaling offset for display on active channel	DISPLAY (Ch 4)
PHO?	Phase scale offset on active channel query	DISPLAY (Ch 4)
PLD	Plot data area only	HARD COPY (Ch 8)
PLG	Select log polar display for active channel	DISPLAY (Ch 4)
PLH	Plot header	HARD COPY (Ch 8)
PLM	Plot markers and limits data	HARD COPY (Ch 8)
PLO?	Output plot mode, portrait or landscape	HARD COPY (Ch 8)
PLR	Select linear polar display for active channel	DISPLAY (Ch 4)
PLS	Plot entire screen	HARD COPY (Ch 8)
PLT	Plot data traces only	HARD COPY (Ch 8)
PMK	Print tabular data for markers	HARD COPY (Ch 8)
PMN	Plot menu	HARD COPY (Ch 8)
PMT	Print tabular data for traces and markers	HARD COPY (Ch 8)
PORT	Select portrait mode for output plot	HARD COPY (Ch 8)
POW	Select the power output display type for the active channel	DISPLAY (Ch 4)
PRT?	Printer test	PERIPHERAL TESTS (Ch 8)
PS	Picoseconds suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
PSC	Picoseconds as the data terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
PSET	Enter the target power for the gain compression receiver calibration	GAIN COMPRESSION (Ch 9)
PSET?	Output the target power for the gain compression receiver calibration	GAIN COMPRESSION (Ch 9)
PSL	Print service log	DIAGNOSTICS (Ch 8)
PSP	Select number of power measurement sweeps for flat-test-port-power calibration	CALIBRATION (Ch 5)
PSP?	Output number of power sweeps for flat power correction	CALIBRATION (Ch 5)
PST	Stop print/plot	HARD COPY (Ch 8)
PSTEP	Enter the power sweep power step value	GAIN COMPRESSION (Ch 9)
PSTEP?	Output the power sweep power step value	GAIN COMPRESSION (Ch 9)
PSTOP	Enter the power sweep stop power	GAIN COMPRESSION (Ch 9)
PSTOP?	Output the power sweep stop power value	GAIN COMPRESSION (Ch 9)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
PSTRT	Enter the power sweep start power	GAIN COMPRESSION (Ch 9)
PSTRT?	Output the power sweep start power value	GAIN COMPRESSION (Ch 9)
PSWC	Perform a power sweep linearity calibration	GAIN COMPRESSION (Ch 9)
PSWC0	Turn power sweep linearity calibration OFF	GAIN COMPRESSION (Ch 9)
PSWC1	Turn power sweep linearity calibration ON	GAIN COMPRESSION (Ch 9)
PSWCX?	Output the power sweep linearity calibration ON/OFF status	GAIN COMPRESSION (Ch 9)
PSWP0	Turn power sweep OFF	GAIN COMPRESSION (Ch 9)
PSWP1	Turn power sweep ON	GAIN COMPRESSION (Ch 9)
PSWPX?	Output the power sweep ON/OFF status	GAIN COMPRESSION (Ch 9)
PT0-PT9	Select printout points skipped (0-9) during tabular printing and disk output	HARD COPY (Ch 8)
PTB	Print tabular data for traces	HARD COPY (Ch 8)
PTL	Select 1/4-size plot top left corner	HARD COPY (Ch 8)
PTP	Enter the target power for flat power correction	MEASUREMENT (Ch 4)
PTP?	Output the target power for flat power correction	MEASUREMENT (Ch 4)
PTR	Select 1/4-size plot top right corner	HARD COPY (Ch 8)
PTS	Select skippped points for flat-test-port-power calibration	CALIBRATION (Ch 5)
PTS?	Skippped points for flat-test-port-power calibration query	CALIBRATION (Ch 5)
PW2	Set external source power	MEASUREMENT (Ch 4)
PW2?	External source power query	MEASUREMENT (Ch 4)
PWR	Adjust internal source power	MEASUREMENT (Ch 4)
PWR?	Internal source power query	MEASUREMENT (Ch 4)
RAD	Radians suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
RC1-RC10	Recall front panel setup from internal memory 1-10	SAVE/RECALL (Ch 8)
RCK	Recall trace memory from floppy disk to active channel	DISK FUNCTION (Ch 8)
RCKH	Recall trace memory from hard disk to active channel	DISK FUNCTION (Ch 8)
RCLALC	Recall ALC Cal file from floppy disk	DISK FUNCTION (Ch 8)
RCLALCH	Recall ALC Cal file from hard disk	DISK FUNCTION (Ch 8)
RCLALL	Recall Combined Hardware Cal file from floppy disk	DISK FUNCTION (Ch 8)
RCLALLH	Recall Combined Hardware Cal file from hard disk	DISK FUNCTION (Ch 8)
RCLCAL	Recall calibration data and front panel setup file from floppy disk	DISK FUNCTION (Ch 8)
RCLCALH	Recall calibration data and front panel setup file from hard disk	DISK FUNCTION (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
RCLDAT	Recall tabular data from floppy disk file specified to printer	DISK FUNCTION (Ch 8)
RCLDATH	Recall tabular data from hard disk file specified to printer	DISK FUNCTION (Ch 8)
RCLELG	Recall Error Log file from floppy disk to printer	DISK FUNCTION (Ch 8)
RCLELGH	Recall Error Log file from hard disk to printer	DISK FUNCTION (Ch 8)
RCLFRE	Recall Frequency Cal file from floppy disk	DISK FUNCTION (Ch 8)
RCLFREH	Recall Frequency Cal file from hard disk	DISK FUNCTION (Ch 8)
RCLLOG	Recall Service Log file from floppy disk to printer	DISK FUNCTION (Ch 8)
RCLLOGH	Recall Service Log file from hard disk to printer	DISK FUNCTION (Ch 8)
RCLNRM	Recall Trace Memory file from floppy disk	DISK FUNCTION (Ch 8)
RCLNRMH	Recall Trace Memory file from floppy disk	DISK FUNCTION (Ch 8)
RD	Remove a directory for the hard drive or floppy disk	DISK FUNCTION (Ch 8)
RDA	Perform automatic reference plane position calculation for active channel	DISPLAY (Ch 4)
RDD	Set reference plane position in distance for active channel	DISPLAY (Ch 4)
RDD?	Reference plane position in distance for active channel query	DISPLAY (Ch 4)
RDT	Set reference plane position in time for active channel	DISPLAY (Ch 4)
RDT?	Reference plane time position for active channel query	DISPLAY (Ch 4)
RECALL	Recall a data file from disk to a task	DISK FUNCTION (Ch 8)
REF	Set scaling reference line position on active channel for rectilinear graph types	DISPLAY (Ch 4)
REF?	Scaling reference line position on active channel for rectilinear graph types query	DISPLAY (Ch 4)
REF2	Sets reference line on bottom graph of active channel display	DISPLAY (Ch 4)
REF2?	Outputs reference line on bottom graph of active channel display	DISPLAY (Ch 4)
REL	Select real display for active channel	DISPLAY (Ch 4)
REU	Real data units terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
RGZ	Select reflective device to be greater than Z0 for LRL calibration	CALIBRATION (Ch 5)
RH0	RF off while in hold	MEASUREMENT (Ch 4)
RH1	RF on while in hold	MEASUREMENT (Ch 4)
RHX?	RF ON/OFF while in hold query	MEASUREMENT (Ch 4)
RIM	Select real and imaginary display for active channel	DISPLAY (Ch 4)
RLD	Recall calibration data and front panel setup file from floppy disk	DISK FUNCTION (Ch 8)
RLDH	Recall calibration data and front panel setup file from hard disk	DISK FUNCTION (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
RLZ	Set reflective device to be less than Z0 for LRL calibration	CALIBRATION (Ch 5)
RM1	Select reference plane at line 1 midpoint (LRL)	CALIBRATION (Ch 5)
ROL	Enter reflective device offset length for LRL calibration	CALIBRATION (Ch 5)
RPC	Repeat previous calibration	CALIBRATION (Ch 5)
RPO	Set rear panel output voltage value	REAR PANEL OUTPUT (Ch 9
RPO?	Rear panel output voltage value query	REAR PANEL OUTPUT (Ch 9)
RRP	Select reference plane at reflection plane (LRL)	CALIBRATION (Ch 5)
RST	Reset default state	SYSTEM STATE (Ch 8)
RST0	Reset instrument plus front panel memories and reserved parameters	SYSTEM STATE (Ch 8)
RST1	Reset instrument plus front panel memories	SYSTEM STATE (Ch 8)
RSTGC	Reset gain compression parameters to default	GAIN COMPRESSION (Ch 9)
RTB	Recall tabular data from floppy disk file specified to printer	DISK FUNCTION (Ch 8)
RTBH	Recall tabular data from hard disk file specified to printer	DISK FUNCTION (Ch 8)
RTL	Return to local (front panel) control	SYSTEM STATE (Ch 8)
RV0	Turn rear panel output voltage OFF	REAR PANEL OUTPUT (Ch 9)
RV1	Turn rear panel output voltage ON	REAR PANEL OUTPUT (Ch 9)
RV1?	Rear panel output voltage ON/OFF query	REAR PANEL OUTPUT (Ch 9)
RVD	Rear panel output mode = dc value	REAR PANEL OUTPUT (Ch 9)
RVH	Select the horizontal rear output voltage mode	REAR PANEL OUTPUT (Ch 9)
RVL	Select the lock-direction-output-voltage mode	REAR PANEL OUTPUT (Ch 9)
RVV	Select the rear panel output voltage to be vertical	REAR PANEL OUTPUT (Ch 9)
RVX?	Rear panel output voltage (analog out) mode query	REAR PANEL OUTPUT (Ch 9)
S	Seconds suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
S11	Measure S11 on active channel	DISPLAY (Ch 4)
S12	Measure S12 on active channel	DISPLAY (Ch 4)
S21	Measure S21 on active channel	DISPLAY (Ch 4)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
S22	Measure S22 on active channel	DISPLAY (Ch 4)
SA1	Set port 1 source attenuator	MEASUREMENT (Ch 4)
SA1?	Port 1 source attenuator query	MEASUREMENT (Ch 4)
SAVALC	Save ALC Cal to floppy disk	DISK FUNCTION (Ch 8)
SAVALCH	Save ALC Cal to hard disk	DISK FUNCTION (Ch 8)
SAVALL	Store internal ALC and frequency hardware calibrations to floppy disk	DISK FUNCTION (Ch 8)
SAVALLH	Store internal ALC and frequency hardware calibrations to hard disk	DISK FUNCTION (Ch 8)
SAVCAL	Save calibration data and front panel setup to file on floppy disk	DISK FUNCTION (Ch 8)
SAVCALH	Save calibration data and front panel setup to file on hard disk	DISK FUNCTION (Ch 8)
SAVDAT	Store tabular data to file on floppy disk	DISK FUNCTION (Ch 8)
SAVDATH	Store tabular data to file on hard disk	DISK FUNCTION (Ch 8)
SAVE	Saves a data file from a task to the hard disk or floppy drive	DISK FUNCTION (Ch 8)
SAVEGC	Saves the multiple frequency gain compression test results to the hard disk or floppy drive	DISK FUNCTION (Ch 8)
SAVELG	Save Error Log to floppy disk	DISK FUNCTION (Ch 8)
SAVELGH	Save Error Log to hard disk	DISK FUNCTION (Ch 8)
SAVFRE	Save Frequency Cal to floppy disk	DISK FUNCTION (Ch 8)
SAVFREH	Save Frequency Cal to hard disk	DISK FUNCTION (Ch 8)
SAVLOG	Save service log to floppy drive	DISK FUNCTION (Ch 8)
SAVLOGH	Save service log to hard drive	DISK FUNCTION (Ch 8)
SAVNRM	Store trace memory to file on floppy disk	DISK FUNCTION (Ch 8)
SAVNRMH	Store trace memory to file on hard disk	DISK FUNCTION (Ch 8)
SBD	Enter substrate dielectric value for microstrip calibration	CALIBRATION (Ch 5)
SBT	Enter substrate thickness for microstrip calibration	CALIBRATION (Ch 5)
SCL	Set scaling on active channel	DISPLAY (Ch 4)
SCL?	Active channel scale query	DISPLAY (Ch 4)
SCL2	Sets Scale Resolution on bottom graph of active channel display	DISPLAY (Ch 4)
SCL2?	Outputs Scale Resolution on bottom graph of active channel display	DISPLAY (Ch 4)
SCM	Select standard Open/Short/Load calibration method	CALIBRATION (Ch 5)
SDG	Start diagnostic troubleshooting mode	DIAGNOSTICS (Ch 8)
SDK	Store trace memory to file on floppy disk	DISK FUNCTION (Ch 8)
SDKH	Store trace memory to file on hard disk	DISK FUNCTION (Ch 8)
SDR	Select standard receiver mode	DIAGNOSTICS (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
SDR?	Output the receiver mode	RECEIVER MODE (Ch 9)
SETUP	Display the most appropriate setup menu at this time	MEASUREMENT (Ch 4)
SFC	Start flat-test-port-power calibration sequence	CALIBRATION (Ch 5)
SFGCA	Select the swept frequency gain compression application	GAIN COMPRESSION (Ch 9)
SFGCT	Start swept frequency gain compression test	GAIN COMPRESSION (Ch 9)
SH1, SH2	Set offset short 1 or 2 offset length for offset short calibration	CALIBRATION (Ch 5)
SL1	Select source lock mode	RECEIVER MODE (Ch 9)
SLC	Clear all segmented limit definitions	LIMITS (Ch 6)
SLD	Select sliding load for calibration	CALIBRATION (Ch 5)
SLH	Set segmented limits horizontal offset	LIMITS (Ch 6)
SLH?	Segmented limits horizontal offset query	LIMITS (Ch 6)
SLL0	Turn lower segmented limits display OFF	LIMITS (Ch 6)
SLL1	Turn lower segmented limits display ON	LIMITS (Ch 6)
SLLX?	Lower segmented limits display ON/OFF query	LIMITS (Ch 6)
SLT	Perform source lock threshold internal calibration	DIAGNOSTICS (Ch 8)
SLU0	Turn upper segmented limits display OFF	LIMITS (Ch 6)
SLU1	Turn upper segmented limits display ON	LIMITS (Ch 6)
SLUX?	Upper segmented sweep limits display ON/OFF query	LMITS (Ch 7)
SLV	Set segmented limits vertical offset	LIMITS (Ch 6)
SLV?	Segmented limits vertical offset query	LIMITS (Ch 6)
SMC	Select compressed Smith chart for active channel	DISPLAY (Ch 4)
SME	Select expanded Smith chart for active channel	DISPLAY (Ch 4)
SMI	Select normal Smith chart for active channel	DISPLAY (Ch 4)
SMKR	Select marker search marker mode	MARKERS (Ch 6)
SOF	Turn off smoothing	ENHANCEMENT (Ch 4)
SOF?	Smoothing ON/OFF query	ENHANCEMENT (Ch 4)
SON	Turn on trace display smoothing and set to percentage (%) of trace	ENHANCEMENT (Ch 4)
SON?	Smoothing value query	ENHANCEMENT (Ch 4)
SPAN	Enter frequency span	MEASUREMENT (Ch 4)
SPAN?	Output frequency span	MEASUREMENT (Ch 4)
SPD	Enter pen speed percentage	HARD COPY (Ch 8)
SPGCA	Select the swept power gain compression application	GAIN COMPRESSION (Ch 9)
SPGCT	Start a swept power gain compression test	GAIN COMPRESSION (Ch 9)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
SPH	Set active segmented limit horizontal stop position	LIMITS (Ch 6)
SPH?	Active segmented limit horizontal stop position query	LIMITS (Ch 6)
SPV	Set active segmented limit vertical stop position	LIMITS (Ch 6)
SPV?	Active segmented limit vertical stop position query	LIMITS (Ch 6)
SRC1	Source linearity voltage test	DIAGNOSTICS (Ch 8)
SRC1AC	Select source 1 as active	MULTIPLE SOURCE CONTROL (Ch 9)
SRC1AC?	Output source 1 active/inactive status	MULTIPLE SOURCE CONTROL (Ch 9)
SRC1EX	Select source 1 as external	MULTIPLE SOURCE CONTROL (Ch 9)
SRC1EX?	Output source 1 external/internal status	MULTIPLE SOURCE CONTROL (Ch 9)
SRC1G0	Turn source 1 GPIB control OFF	MULTIPLE SOURCE CONTROL (Ch 9)
SRC1G1	Turn source 1 GPIB control ON	MULTIPLE SOURCE CONTROL (Ch 9)
SRC1GX?	Output source 1 gpib control ON/OFF status	MULTIPLE SOURCE CONTROL (Ch 9)
SRC1NA	Select source 1 as inactive	MULTIPLE SOURCE CONTROL (Ch 9)
SRC1NT	Select source 1 as internal	MULTIPLE SOURCE CONTROL (Ch 9)
SRC2	Source power output voltage test	DIAGNOSTICS (Ch 8)
SRC2AC	Select source 2 as active	MULTIPLE SOURCE CONTROL (Ch 9)
SRC2AC?	Output source 2 active/inactive status	MULTIPLE SOURCE CONTROL (Ch 9)
SRC2G0	Turn source 2 GPIB control OFF	MULTIPLE SOURCE CONTROL (Ch 9)
SRC2G1	Turn source 2 GPIB control ON	MULTIPLE SOURCE CONTROL (Ch 9)
SRC2GX?	Output source 2 gpib control ON/OFF status	MULTIPLE SOURCE CONTROL (Ch 9)
SRC2NA	Select source 2 as inactive	MULTIPLE SOURCE CONTROL (Ch 9)
SRCH	Enter marker search value	MARKERS (Ch 6)
SRCH?	Output marker search value	MARKERS (Ch 6)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
SRT	Set start frequency	MEASUREMENT (Ch 4)
SRT?	Start frequency query	MEASUREMENT (Ch 4)
ST1	Select set on mode	RECEIVER MODE (Ch 9)
STD	Store active channel trace data to memory	DISPLAY (Ch 4)
STH	Set active segmented limit horizontal start position	LIMITS (Ch 6)
STH?	Active segmented limit horizontal start position query	LIMITS (Ch 6)
STO	Save calibration data and front panel setup to file on floppy disk	DISK FUNCTION (Ch 8)
STOH	Save calibration data and front panel setup to file on hard disk	DISK FUNCTION (Ch 8)
STP	Set stop frequency	MEASUREMENT (Ch 4)
STP?	Stop frequency query	MEASUREMENT (Ch 4)
STV	Set active segmented limit vertical start position	LIMITS (Ch 6)
STV?	Active segmented limit vertical start position query	LIMITS (Ch 6)
SV1-SV10	Save front panel setup to internal memory 1-10	SAVE/RECALL (Ch 8)
SVB	Save current band definitions	MULTIPLE SOURCE CONTROL (Ch 9)
SWP	Return to full sweep mode	MEASUREMENT (Ch 4)
SWP?	Sweep mode query	MEASUREMENT (Ch 4)
SWPDIR?	Outputs the instantaneous sweep direction forward/reverse	MEASUREMENT (Ch 4)
SWR	Select SWR display for active channel	DISPLAY (Ch 4)
SXX?	S parameter on active channel query	DISPLAY (Ch 4)
T13	Display overlaid channels 1 and 3 only	CHANNELS (Ch 4)
T24	Display overlaid channels 2 and 4 only	CHANNELS (Ch 4)
TA2	Set port 2 test attenuator	MEASUREMENT (Ch 4)
TA2?	Port 2 test attenuator query	MEASUREMENT (Ch 4)
TBP	Select time bandpass processing mode for active channel	TIME DOMAIN (Ch 9)
TC1	Take calibration data for current standard on test port 1 (only)	CALIBRATION (Ch 5)
TC2	Take calibration data for current standard on test port 2 (only)	CALIBRATION (Ch 5)
TCD	Take calibration data for current standard (both test ports)	CALIBRATION (Ch 5)
TDC	Select time domain harmonic frequency cali-bration data points	CALIBRATION (Ch 5)
TDD	Store tabular data to file on floppy disk	DISK FUNCTION (Ch 8)
TDDH	Store tabular data to file on hard disk	DISK FUNCTION (Ch 8)
TDDIST	Set time domain parameter to distance for active channnel	TIME DOMAIN (Ch 9)
TDDIST?	Output active channel time domain parameter (time or distance)	TIME DOMAIN (Ch 9)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
TDL	Select DC coefficient for loss equation of through line used during calibration	CALIBRATION (Ch 5)
TDPI0	Turn phasor impulse response off for active channel	TIME DOMAIN (Ch 9)
TDPI1	Turn phasor impulse response on for active channel	TIME DOMAIN (Ch 9)
TDPIX?	Output phasor impulse on/off status for active channel	TIME DOMAIN (Ch 9)
TDTIME	Set time domain parameter to time for active channel	TIME DOMAIN (Ch 9)
TDX?	Time Domain mode query	TIME DOMAIN (Ch 9)
TEB	Select external trigger executes the *DDT trigger definition	TRIGGERS (Ch 7)
TEX	Select external measurement triggering via the rear panel connector	MEASUREMENT (Ch 4)
TFE	Select frequency exponent for loss equation of through line used during calibration	CALIBRATION (Ch 5)
TFL	Select frequency coefficient for loss equation of through line used during calibration	CALIBRATION (Ch 5)
TIB	Select GPIB measurement triggering	TRIGGERS (Ch 7)
TIME	Enter the system time	SYSTEM STATE (Ch 8)
TIME?	Output the system time	SYSTEM STATE (Ch 8)
TIN	Select internal measurement triggering	MEASUREMENT (Ch 4)
TK0	Select tracking mode OFF	RECEIVER MODE (Ch 9)
TK1	Select tracking mode	RECEIVER MODE (Ch 9)
TLP	Select time lowpass mode for active channel	TIME DOMAIN (Ch 9)
TLZ	Enter throughline impedance for calibration	CALIBRATION (Ch 5)
TOL	Select offset length for through line used during calibration	CALIBRATION (Ch 5)
TPI	Select time phasor impulse mode for active channel	TIME DOMAIN (Ch 9)
TPN	Enter pen number for trace overlay data	HARD COPY (Ch 9)
TRCCOL	Enter the color number for memory data	SYSTEM STATE (Ch 8)
TRCCOL?	Memory data color number query	SYSTEM STATE (Ch 8)
TRS	Trigger/restart sweep	MEASUREMENT (Ch 4)
TST	Perform self test and output pass/fail result	IEEE 488.2 (Ch 7)
TXX?	Trigger source query	MEASUREMENT (Ch 4)
U10	Select 10 mil calibration kit for microstrip calibration	CALIBRATION (Ch 5)
U15	Select 15 mil calibration kit for microstrip calibration	CALIBRATION (Ch 5)
U25	Select 25 mil calibration kit for microstrip calibration	CALIBRATION (Ch 5)
UNDOGC	Exit gain compression application	GAIN COMPRESSION (Ch 9)
UPL0	Turn off upper limit for the active channel	LIMITS (Ch 6)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
UPL1	Turn on upper limit for the active channel	LIMITS (Ch 6)
UPL20	Turn upper limit off for bottom graph	LIMITS (Ch 6)
UPL21	Turn upper limit on at current value for bottom graph	LIMITS (Ch 6)
UPL2X?	Output upper limit on/off status for bottom graph	LIMITS (Ch 6)
UPLX?	Upper limit ON/OFF query	LIMITS (Ch 6)
US	Microseconds suffix for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
US1-US10	Make USx the active segmented upper limit on the active channel	LIMITS (Ch 6)
USC	Microseconds terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
USE	Enter effective dielectric for microstrip calibration	CALIBRATION (Ch 5)
USL	Enter label string for user parameter being defined	USER DEFINED PARAMETERS (Ch 9)
USL?	Output the label string for the user parameter being defined	USER DEFINED PARAMETERS (Ch 9)
USR1	Measure user parameter 1 on active channel	USER DEFINED PARAMETERS (Ch 9)
USR2	Measure user parameter 2 on active channel	USER DEFINED PARAMETERS (Ch 9)
USR3	Measure user parameter 3 on active channel	USER DEFINED PARAMETERS (Ch 9)
USR4	Measure user parameter 4 on active channel	USER DEFINED PARAMETERS (Ch 9)
USW	Enter microstrip width for microstrip calibration	CALIBRATION (Ch 5)
USZ	Enter microstrip impedance for microstrip calibration	CALIBRATION (Ch 5)
V	Volts suffix	DATA ENTRY SUFFIXES (Ch 4)
VLT	Volts terminator for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
VSP	Select rear panel output voltage voltage stop value	REAR PANEL OUTPUT (Ch 9)
VSP?	Rear panel output voltage stop value query	REAR PANEL OUTPUT (Ch 9)
VST	Select rear panel output voltage start value	REAR PANEL OUTPUT (Ch 9)
VST?	Rear panel output voltage start value query	REAR PANEL OUTPUT (Ch 9)
WBMP	Select white background for screen dump bitmap	HARD COPY (Ch 8)

Table 1. Alphabetical Listing of Programming Codes (Mnemonics)

Command	Function	Group
WCO	Set cutoff frequency for user-defined waveguide calibration kit	CALIBRATION (Ch 5)
WFS	Wait full sweep until all display data is valid	MEASUREMENT (Ch 4)
WKD	Select user-defined waveguide calibration kit	CALIBRATION (Ch 5)
WKI	Select installed waveguide calibration kit	CALIBRATION (Ch 5)
WLS	Select low sidelobe window shape for active channel	TIME DOMAIN (Ch 9)
WMS	Select minimum sidelobe window shape for active channel	TIME DOMAIN (Ch 9)
WNM	Select nominal window shape	TIME DOMAIN (Ch 9)
WRT	Select rectangular window shape	TIME DOMAIN (Ch 9)
WSH1	Set waveguide short offset 1 for user defined kit	CALIBRATION (Ch 5)
WSH2	Set waveguide short offset 2 for user defined kit	CALIBRATION (Ch 5)
WSX?	Output window shape	TIME DOMAIN (Ch 9)
XM3	Unitless terminator (X*10Eû3) for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
XMKR?	Output marker mode	MARKERS (Ch 6)
XSB?	Outputs the byte order for binary data LSB or MSB	DATA TRANSFER (Ch 7)
XX1	Unitless terminator (X1) for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
XX3	Unitless terminator (X*10E+3) for numerical data entries	DATA ENTRY SUFFIXES (Ch 4)
ZCT	Set zoom range center value for time domain sweep	TIME DOMAIN (Ch 9)
ZCT?	Output zoom range center value	TIME DOMAIN (Ch 9)
ZSN	Set zoom range span value	TIME DOMAIN (Ch 9)
ZSN?	Output zoom range span value	TIME DOMAIN (Ch 9)
ZSP	Set zoom range stop value	TIME DOMAIN (Ch 9)
ZSP?	Output zoom range stop value	TIME DOMAIN (Ch 9)
ZST	Set zoom range start value	TIME DOMAIN (Ch 9)
ZST?	Output zoom range start value	TIME DOMAIN (Ch 9)

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
	Adapter Removal, Chapter 9
ADPL	Enter adapter electrical length for adapter removal
ADPL?	Output adapter electrical length for adapter removal
IARF	Enter Adapter Removal files from the GPIB and calibrate
	Calibration, Chapter 5
A12	Simulate 12-term calibration
A8R	Simulate 1 path, 2 port reverse path calibration
A8T	Simulate 1 path, 2 port forward path calibration
ABT	Simulate trans freq response calibration forward and reverse paths
AFT	Simulate trans freq response calibration forward path calibration
ARB	Simulate reflection-only calibration for both forward- and reverse-paths
ARF	Simulate reflection only forward path calibration
ARR	Simulate reflection-only reverse path calibration
ART	Simulate transmission-only reverse path calibration
BBL	Select broadband load for use as calibration standard
BBZ	Enter broadband load impedance for calibration
BBZL	Enter the broadband load inductance for calibration
BEG	Begin calibration standards measurement process
BPF	Set break point frequency for 3 line LRL calibration
C12	Select 12 term calibration
C8R	Select 1-path 2-port reverse path calibration
C8T	Select 1-path 2-port forward path calibration
CBT	Select transmission-only calibration for both forward- and reverse-paths
CC0-CC3	Enter Open Standard capacitance coefficient (0, 1, 2, or 3) for use with user-defineded connector on selected port
CF2	Select female 2.4mm connector for current port
CF3	Select female GPC-3.5 connector for current port
CFC	Select female TNC connector for selected port
CFK	Select female K connector for current port
CFN	Select female Type N connector for selected port
CFS	Select female SMA connector for selected port
CFT	Select forward path transmission-only calibration
CFV	Select female V connector for selected port
CL0	Enter inductive coefficient 0 for a short
CL1	Enter inductive coefficient 1 for a short
CL2	Enter inductive coefficient 2 for a short
CL3	Enter inductive coefficient 3 for a short
CM2	Select male 2.4 mm connector for selected port
CM3	Select male GPC-3.5 connector for selected port
CMC	Select male TNC connector for selected port
CMK	Select male K connector for selected port
CMN	Select male Type N connector for selected port
CMS	Select male SMA connector for selected port
CMV	Select Male V connector for selected port
CMX?	Calibration method query
CND	Select user-defined connector for selected port
CNG	Select GPC-7 connector for selected port

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
COF	Turn vector error correction OFF
CON	Turn vector error correction ON
CON?	Vector error correction ON/OFF query
COO	Enter Open Standard offset value for user-defined connector on selected port
COS	Enter Short Standard offset for user-defined connector on selected port
CRB	Select reflection only calibration for both forward and reverse paths
CRF	Select forward path reflection-only calibration
CRR	Select reverse path reflection-only calibration
CRT	Select reverse path transmission-only calibration
CSF?	Calibration start frequency query
CTF?	Calibration stop frequency query
CWC	Select CW frequency calibration
CXX?	Output calibration type
DFC	Select discrete frequency calibration
DFD	Done specifying discrete frequency ranges
DFQ	Enter single discrete frequency
ISF	Exclude isolation measurement step during calibration
ISN	Include isolation measurement step during calibration
KEC	Keep existing calibration data and return to measurement mode (abort calibration process)
LCM	Select LRL/M (Line Reflect Line/Match) calibration method
LL1	Enter length of line 1 for LRL calibration
LL2	Enter length of line 2 for LRL calibration
LL3	Enter length of line 3 for LRL calibration
LLZ	Enter line impedance for LRL calibration
LM2	Select a match for the second device during a LRM type calibration
LM3	Select a match for the third device during a LRM type calibration
LR2	Specify 2 line LRL calibration
LR3	Specify 3 line LRL calibration
LTC	Select coaxial transmission line for calibration
LTU	Select microstrip transmission line for calibration
LTW	Select waveguide transmission line for calibration
LTX?	Calibration transmission line type query
MAT	Select matched reflection device (open/open, short/short) measurement sequence for standard calibration
MIX	Select mixed reflection device (open/short, short/open) measurement sequence for standard calibration
NCS	Go to next calibration step
NOC	Select normal calibration data points
OCM	Select offset short calibration method
ONCP	Output number of points for current calibration
ONCT	Output number of terms for current calibration
P1C	Select port 1 for connector specification
P1C?	Port 1 connector specification query
P1P?	Output power at port 1 query
P2C	Select port 2 for connector specification
P2C?	Select port 2 for connector specification query
PSP	Select number of power measurement sweeps for flat-test-port-power calibration
PSP?	Output number of power sweeps for flat power correction
PTS	Select skippped points for flat-test-port-power calibration
PTS?	Skippped points for flat-test-port-power calibration query

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
RGZ	Select reflective device to be greater than Z0 for LRL calibration
RLZ	Set reflective device to be less than Z0 for LRL calibration
RM1	Select reference plane at line 1 midpoint (LRL)
ROL	Enter reflective device offset length for LRL calibration
RPC	Repeat previous calibration
RRP	Select reference plane at reflection plane (LRL)
SBD	Enter substrate dielectric value for microstrip calibration
SBT	Enter substrate thickness for microstrip calibration
SCM	Select standard Open/Short/Load calibration method
SFC	Start flat-test-port-power calibration sequence
SH1, SH2	Set offset short 1 or 2 offset length for offset short calibration
SLD	Select sliding load for calibration
TC1	Take calibration data for current standard on test port 1 (only)
TC2	Take calibration data for current standard on test port 2 (only)
TCD	Take calibration data for current standard (both test ports)
TDC	Select time domain harmonic frequency calibration data points
TDL	Select DC coefficient for loss equation of through line used during calibration
TFE	Select frequency exponent for loss equation of through line used during calibration
TFL	Select frequency coefficient for loss equation of through line used during calibration
TLZ	Enter throughline impedance for calibration
TOL	Select offset length for through line used during calibration
U10	Select 10 mil calibration kit for microstrip calibration
U15	Select 15 mil calibration kit for microstrip calibration
U25	Select 25 mil calibration kit for microstrip calibration
USE	Enter effective dielectric for microstrip calibration
USW	Enter microstrip width for microstrip calibration
USZ	Enter microstrip impedance for microstrip calibration
WCO	Set cutoff frequency for user-defined waveguide calibration kit
WKD	Select user-defined waveguide calibration kit
WKI	Select installed waveguide calibration kit
WSH1	Set waveguide short offset 1 for user defined kit
WSH2	Set waveguide short offset 2 for user defined kit
	Channels, Chapter 4
CH1 - CH4	Make channel (1, 2, 3, or 4) the active channel
CHX?	Active channel number query
D13	Display channels 1 and 3 only (Dual display)
D14	Display all 4 channels (Quad display)
D24	Display channels 2 and 4 only (Dual display)
DSP	Select single channel display of active channel
DSP?	Channel display mode query
T13	Display overlaid channels 1 and 3 only
T24	Display overlaid channels 2 and 4 only
	Data Entry Suffixes, Chapter 4
CM	Centimeters suffix for numerical data entries

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
CMT	Centimeters suffix for numerical data entries
DB	Decibels suffix for numerical data entries
DBL	Decibels suffix for numerical data entries
DBM	dBm suffix for numerical data entries
DEG	Degrees terminator for numerical data entries
GHZ	Gigahertz suffix for numerical data entries
HZ	Hertz suffix for numerical data entries
IMU	Imaginary units terminator for numerical data entries
KHZ	Kilohertz terminator for numerical data entries
M	Meters suffix for numerical data entries
MHZ	Megahertz terminator for numerical data entries
MM	Millimeters suffix for numerical data entries
MMT	Millimeter terminator for numerical data entries
MS	Milliseconds suffix for numerical data entries
MTR	Meter terminator for numerical data entries
MV	Millivolt suffix for numerical data entries
NS	Nanoseconds suffix for numerical data entries
NSC	Nanoseconds suffix for numerical data entries
OHM	Ohms suffix for numerical data entries
PS	Picoseconds suffix for numerical data entries
PSC	Picoseconds as the data terminator for numerical data entries.
RAD	Radians suffix for numerical data entries
REU	Real data units terminator for numerical data entries
S	Seconds suffix for numerical data entries
US	Microseconds suffix for numerical data entries
USC	Microseconds terminator for numerical data entries
V	Volts suffix
VLT	Volts terminator for numerical data entries
XM3	Unitless terminator (X*10E03) for numerical data entries
XX1	Unitless terminator (X1) for numerical data entries
XX3	Unitless terminator (X*10E+3) for numerical data entries,,
Data Transfer, Chapter 7	
DPR0	Turn off outputting of data pairs for single graph data types only
DPR1	Turn on outputting of data pairs for single graph type displays
FMA	Select ASCII data transfer format
FMB	Select IEEE754 64 bit data transfer format
FMC	Select IEEE754 32 bit data transfer format
FMX?	Outputs the data output mode FMA, FMB, or FMC
XSB?	Outputs the byte order for binary data LSB or MSB
Diagnostics, Chapter 8	
ALC	Initiate ALC loop internal calibration
CSL	Clear error list from service log
DBP	Select Distance Bandpass mode for active channel
DCA	Select Automatic DC term calculation for lowpass
DCO	Select Open for DC term for lowpass
DLP	Select Distance lowpass mode for active channel
DRL	Set diagnostic read latch
DVM	Display DVM channel
DWL	Set diagnostic write latch
EDG	End diagnostics mode

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
EXD	Display external A/D input
FLC	Source frequency linearity internal calibration
FPX?	Flat power correction ON/OFF status query
IFB	Run 1st IF bandpass test
L1C	Perform LO1 internal calibration
L2C	Perform LO2 internal calibration
LKS0	Disable lock search mode
LKS1	Enable lock search mode
LO11	Run LO1 phase-lock voltage test
LO12	Run LO1 D/A voltage test
LO21	Run LO2 main phase lock voltage test
LO22	Run LO2 offset phase lock voltage test
LO23	Run LO2 dds phase lock voltage test
LO24	Run LO2 main d/a voltage test
LO25	Run LO2 offset d/a voltage test
NRD	Display non-ratioed parameters on four channels
PEL	Print the error log
PSL	Print service log
SDG	Start diagnostic troubleshooting mode
SDR	Select standard receiver mode
SLT	Perform source lock threshold internal calibration
SRC1	Source linearity voltage test
SRC2	Source power output voltage test
Disk Functions, Chapter 8	
ADRIVE	Selects the floppy drive as the default drive
CD	Changes the default directory (and drive)
CDRIVE	Selects the hard disk as the default drive
COPY	Copy a files contents to another file
CPYALCFH	Copy ALC Cal file from floppy to hard disk
CPYALCHF	Copy ALC Cal file from hard to floppy disk
CPYALLFH	Copy Combined Hardware Cal file from floppy to hard disk
CPYALLHF	Copy Combined Hardware Cal file from hard to floppy disk
CPYCALFH	Copy specified calibration file from floppy drive to hard drive
CPYCALHF	Copy specified calibration file from hard drive to floppy drive
CPYDATFH	Copy specified data file from hard drive to floppy drive
CPYDATHF	Copy specified data file from floppy drive to hard drive
CPYELGFH	Copy Error Log file from floppy to hard disk
CPYELGHF	Copy Error Log file from hard to floppy disk
CPYFREFH	Copy Frequency Cal file from floppy to hard disk
CPYFREHF	Copy Frequency Cal file from hard to floppy disk
CPYLOGFH	Copy Service Log file from floppy to hard disk
CPYLOGHF	Copy Service Log file from hard to floppy disk
CPYNRMFH	Copy specified normalization file from floppy drive to hard drive
CPYNRMHF	Copy specified normalization file from hard drive to floppy drive
CWD?	Outputs the current default disk drive and directory
DEC	Delete calibration/front panel setup file from floppy disk
DECH	Delete calibration/front panel setup file from hard disk
DED	Delete tabular data file from floppy disk
DEDH	Delete tabular data file from hard disk
DEL	Delets a file from a disk
DELALC	Delete ALC Cal file from floppy disk
DELALCH	Delete ALC Cal file from hard disk

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
DELALL	Delete Combined Hardware Cal file from floppy disk
DELALLH	Delete Combined Hardware Cal file from hard disk
DELCAL	Delete Calibration/Front Panel Setup from floppy disk
DELCALH	Delete Calibration/Front Panel Setup from hard disk
DELDAT	Delete Tabular Data file from floppy disk
DELDATH	Delete Tabular Data file from hard disk
DELELG	Delete Error Log file from floppy disk
DELELGH	Delete Error Log file from hard disk
DELFRE	Delete Frequency Cal file from floppy disk
DELFREH	Delete Frequency Cal file from hard disk
DELLOG	Delete Service Log file from floppy disk
DELLOGH	Delete Service Log file from hard disk
DELNRM	Delete Trace Memory File from floppy disk
DELNRMH	Delete Trace Memory File from hard disk
DEN	Delete trace memory file from floppy disk
DENH	Delete trace memory file from hard disk
DIR	Outputs a directory listing
DISKRD	Outputs the contents of a disk file
DISKWR	Writes data to a disk file
EXISTD?	Outputs disk directory existence information
EXISTF?	Outputs disk file existence information
INT	Initialize (format) floppy disk
LDARF	Load adapter removal files from disk and calibrate
LKT	Load calibration kit information from floppy disk
MD	Create an new subdirectory on the hard disk or floppy drive
PDR	Print directory listing of the floppy drive
PDRH	Print directory listing of the hard drive
PGT	Plot graticule

Command	Function
RCK	Recall trace memory from floppy disk to active channel
RCKH	Recall trace memory from hard disk to active channel
RCLALC	Recall ALC Cal file from floppy disk
RCLALCH	Recall ALC Cal file from hard disk
RCLALL	Recall Combined Hardware Cal file from floppy disk
RCLALLH	Recall Combined Hardware Cal file from hard disk
RCLCAL	Recall calibration data and front panel setup file from floppy disk
RCLCALH	Recall calibration data and front panel setup file from hard disk
RCLDAT	Recall tabular data from floppy disk file specified to printer
RCLDATH	Recall tabular data from hard disk file specified to printer
RCLELG	Recall Error Log file from floppy disk to printer
RCLELGH	Recall Error Log file from hard disk to printer
RCLFRE	Recall Frequency Cal file from floppy disk
RCLFREH	Recall Frequency Cal file from hard disk
RCLLOG	Recall Service Log file from floppy disk to printer
RCLLOGH	Recall Service Log file from hard disk to printer
RCLNRM	Recall Trace Memory file from floppy disk
RCLNRMH	Recall Trace Memory file from floppy disk
RD	Remove a directory for the hard drive or floppy disk
RECALL	Recall a data file from disk to a task
RLD	Recall calibration data and front panel setup file from floppy disk
RLDH	Recall calibration data and front panel setup file from hard disk
RTB	Recall tabular data from floppy disk file specified to printer

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
RTBH	Recall tabular data from hard disk file specified to printer
SAVALC	Save ALC Cal to floppy disk
SAVALCH	Save ALC Cal to hard disk
SAVALL	Store internal ALC and frequency hardware calibrations to floppy disk
SAVALLH	Store internal ALC and frequency hardware calibrations to hard disk
SAVCAL	Save calibration data and front panel setup to file on floppy disk
SAVCALH	Save calibration data and front panel setup to file on hard disk
SAVDAT	Store tabular data to file on floppy disk
SAVDATH	Store tabular data to file on hard disk
SAVE	Saves a data file from a task to the hard disk or floppy drive
SAVEGC	Saves the multiple frequency gain compression test results to the hard disk or floppy drive
SAVELG	Save Error Log to floppy disk
SAVELGH	Save Error Log to hard disk
SAVFRE	Save Frequency Cal to floppy disk
SAVFREH	Save Frequency Cal to hard disk
SAVLOG	Save service log to floppy drive
SAVLOGH	Save service log to hard drive
SAVNRM	Store trace memory to file on floppy disk
SAVNRMH	Store trace memory to file on hard disk
SDK	Store trace memory to file on floppy disk
SDKH	Store trace memory to file on hard disk
STO	Save calibration data and front panel setup to file on floppy disk
STOH	Save calibration data and front panel setup to file on hard disk
TDD	Store tabular data to file on floppy disk
TDDH	Store tabular data to file on hard disk

Command	Function
	Display, Chapter 4
ADD	Select addition as Trace Math for active channel
APR	Enter Group delay aperture setting on active channel in percent
APR?	Group delay aperture for active channel query
ASC	Autoscale the active channel display
ASP	Set polar stop sweep position angle for polar display on active channel
ASP?	Stop-sweep-position angle for polar display on active channel query
AST	Set polar start sweep position angle for polar display on active channel query
AST?	Output polar start sweep position angle for polar display on active channel query
DAT	Display currently measured data for active channel
DAT?	Trace memory display mode for active channel query
DIA	Select air as active dielectric
DIE	Enter a dielectric value
DIM	Select microporous teflon as active dielectric
DIP	Select polyethylene as dielectric type
DIT	Select teflon (2.1) as dielectric type
DIV	Select Division as Trace Math for active channel
DIX?	Dielectric constant query
DLA	Select Group Delay display for active channel
DNM	Display data normalized to Trace Memory on active channel on VCRT
DTM	Display Measurement data and trace memory on active channel
GRF?	Output graph type for active channel
IMG	Select Imaginary display for active channel
ISC	Select inverted compressed Smith Chart for active channel

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
ISE	Select inverted expanded Smith chart for active channel
ISM	Select normal inverted Smith chart for active channel
LIN	Select Linear magnitude display for active channel
LPH	Select linear magnitude and phase display for active channel
MAG	Select log magnitude display for active channel
MEM	Display Trace Memory on active channel
MIN	Select Subtraction as Trace Math for active channel
MPH	Select log magnitude and phase display for active channel
MTH?	Output trace math math type
MUL	Select multiplication as trace math for active channel
OFF	Set scaling offset value on active channel
OFF?	Scaling offset value on active channel query
OFF2	Sets offset level on bottom graph of active channel display
OFF2?	Outputs offset level on bottom graph of active channel display
PCP	Select 'measurement phase' polar chart mode
PCS	Select 'sweep position' polar chart mode for active channel
PCX?	Polar chart position/phase mode query
PHA	Select phase display for active channel
PHO	Set phase scaling offset for display on active channel
PHO?	Phase scale offset on active channel query
PLG	Select log polar display for active channel
PLR	Select linear polar display for active channel
POW	Select the power output display type for the active channel
RDA	Perform automatic reference plane position calculation for active channel
RDD	Set reference plane position in distance for active channel
RDD?	Reference plane position in distance for active channel query
RDT	Set reference plane position in time for active channel
RDT?	Reference plane time position for active channel query
REF	Set scaling reference line position on active channel for rectilinear graph types
REF?	Scaling reference line position on active channel for rectilinear graph types query
REF2	Sets reference line on bottom graph of active channel display
REF2?	Outputs reference line on bottom graph of active channel display
REL	Select real display for active channel
RIM	Select real and imaginary display for active channel
S11	Measure S11 on active channel
S12	Measure S12 on active channel
S21	Measure S21 on active channel
S22	Measure S22 on active channel
SCL	Set scaling on active channel
SCL?	Active channel scale query
SCL2	Sets Scale Resolution on bottom graph of active channel display
SCL2?	Outputs Scale Resolution on bottom graph of active channel display
SMC	Select compressed Smith chart for active channel
SME	Select expanded Smith chart for active channel
SMI	Select normal Smith chart for active channel
STD	Store active channel trace data to memory

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
SWR	Select SWR display for active channel
SXX?	S parameter on active channel query
	Enhancement, Chapter 4
AOF	Turn averaging OFF
AOF?	Turn data averaging OFF
AON	Turn averaging ON
AVG	Turn data averaging ON and set number of averages.
AVG?	Number of averages query
IF1	Set IF bandwidth to 10 Hz
IF2	Set IF bandwidth to 100Hz
IF3	Set IF bandwidth to 1kHz
IF4	Set IF bandwidth to 10kHz
IFA	Set IF bandwidth to maximum (10kHz)
IFM	Select minimum IF bandwidth (10 Hz)
IFN	Select normal IF bandwidth (1 kHz)
IFR	Select reduced IF bandwidth (100 Hz)
IFX?	IF bandwidth query
SOF	Turn off smoothing
SOF?	Smoothing ON/OFF query
SON	Turn on trace display smoothing and set to percentage (%) of trace
SON?	Smoothing value query
	Error Reporting, Chapter 7
OEL	Output list of error messages
ONE	Output number of error messages stored in service log
OGE	Output Extended Description of current GPIB error.
OGL	Output Extended Description of previous GPIB error.
	Fast CW, Chapter 7
FCW0	Turn fast CW measurement mode off
FCW1	Turn fast CW measurement mode on
FCWX?	Output the fast CW measurement mode on/off status
	Gain Compression, Chapter 9
CALR	Perform receiver cal for gain compression testing
GCMP	Enter gain compression point search value
GCMP?	Output gain compression point search value
MFGCT	Start a multiple frequency swept power gain compression test
NOFST	Enter the nominal offset value for the gain in the external path
NOFST?	Output the nominal offset value for the gain in the external path
NRMS	Normalize S21 for gain compression testing
PSET	Enter the target power for the gain compression receiver calibration
PSET?	Output the target power for the gain compression receiver calibration
PSTEP	Enter the power sweep power step value
PSTEP?	Output the power sweep power step value
PSTOP	Enter the power sweep stop power
PSTOP?	Output the power sweep stop power value
PSTRT	Enter the power sweep start power
PSTRT?	Output the power sweep start power value
PSWC	Perform a power sweep linearity calibration
PSWC0	Turn power sweep linearity calibration OFF
PSWC1	Turn power sweep linearity calibration ON
PSWCX?	Output the power sweep linearity calibration ON/OFF status
PSWP0	Turn power sweep OFF
PSWP1	Turn power sweep ON
PSWPX?	Output the power sweep ON/OFF status
RSTGC	Reset gain compression parameters to default
SFGCA	Select the swept frequency gain compression application

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
SFGCT	Start swept frequency gain compression test
SPGCA	Select the swept power gain compression application
SPGCT	Start a swept power gain compression test
UNDOGC	Exit gain compression application
Hard Copy, Chapter 8	
BBMP	Select black background for screen dump bitmap
DPN	Enter pen number for data plotting
FFD	Send a form feed command to the printer (and stop print/plot action).
GPN	Enter pen number for graticule
HD0	Turn off tabular data headers and page formatting
HD1	Turn on tabular data headers and page formatting
HPN	Enter pen number for header
LAND	Select landscape mode for output plot
LDT	Enter date (or time) for data printout label
LDT?	Output label string for date/time
LDT0	Disable printing date/time in hard copy output
LDT1	Enable printing date/time in hard copy output
LMS	Enter model/serial number for data printout label
LOC	Enter label string for operator's comments for data printout
LOC?	Output label string for operator's comment
LOGO?	Output hard copy logo selection standard/user defined
LOGO0	Turn hard copy and plotter logo OFF
LOGO1	Turn hard copy and plotter logo ON
LOGOS	Select standard Wiltron logo for hard copy prints or plots
LOGOU	Select user defined logo for hard copy prints or plots
LOGOX?	Output hard copy and plotter logo printing on/off status
OBMB	Output screen dump bit map in black and white
OBMC	Output screen dump bit map in color
ODAT	Output tabular data
OGCTXT	Output gain compression final data in text format
OHGL	Output HPGL format data to the GPIB
OS2P	Output S2P format data to the GPIB
OTXT	Output text format data to GPIB
PBL	Select 1/4-size plot bottom left corner
PBR	Select 1/4-size plot bottom right corner
PFL	Select full-size plot
PFS	Print full screen image
PGR	Print graph area screen image
PLD	Plot data area only
PLH	Plot header
PLM	Plot markers and limits data
PLO?	Output plot mode, portrait or landscape
PLS	Plot entire screen
PLT	Plot data traces only
PMK	Print tabular data for markers
PMN	Plot menu
PMT	Print tabular data for traces and markers
PORT	Select portrait mode for output plot
PST	Stop print/plot
PT0-PT9	Select printout points skipped (0-9) during tabular printing and disk output
PTB	Print tabular data for traces
PTL	Select 1/4-size plot
PTR	Select 1/4-size plot
SPD	Enter pen speed percentage
TPN	Enter pen number for trace overlay data

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
WBMP	Select white background for screen dump bitmap
IEEE 488.2, Chapter 7	
*CLS	Clear all Event Registers summarized in the Status Byte
*DDT	Define device trigger command
*DDT?	Define device trigger query
*ESE	Set Standard Event Status Enable Register
*ESE?	Standard Event Status Enable query
*ESR?	Standard Event Status Register query
*IDN?	Identification query
*IST?	Individual Status Message (ist) query
*OPC	Operation Complete Status
*OPC?	Operation Complete query
*OPT?	Options identification query
*PRE	Set Parallel Poll Enable Register
*PRE?	Parallel Poll Register Enable query
*RST	Reset to default state
*SRE	Set Service Request Enable Register
*SRE?	Service Request Enable query
*STB?	Status Byte query
*TRG	Trigger
*TST?	Perform self test and output pass/fail result
*WAI	Wait to Continue
OPB	Output Primary Status Byte
TST	Perform self test and output pass/fail result
Internal Buffer Data Collection, Chapter 7	
CCD	Collect Corrected Data in an internal buffer
CFD	Collect Final Data in an internal buffer
CRD	Collect Raw Data in an internal buffer
CXD?	Output the data collection mode currently selected
DCCTN	Resume or commence internal buffer data collection
DCCTN?	Output the internal buffer data collection resume/suspend status
DCHLD	Temporarily suspend internal buffer data collection
DCMRK	Insert a value into the internal buffer used for data collection
DCOFF	Turn internal buffer data collection mode off
Limits, Chapter 6	
ATTN	Attach next segment and make the active segment
BEGN	Begin next segment and make the active segment
CAS	Clear active segmented limit vertical/horizontal definitions
DIS	Display active segmented limit on active channel
DIS?	Active segmented limits ON/OFF query
HID	Hide active segmented limit on active channel
LB0	Turn limits testing beep on failure OFF
LB1	Turn on limits pass/fail testing beeper
LBX?	Limits testing beeper enabled/disabled query
LFD	Set limit frequency read-out delta value for active channel
LFD?	Output limit frequency readout delta value
LFD2	Enters limit frequency readout delta value for bottom graph
LFD2?	Outputs limit frequency readout delta value for bottom graph
LFP	Select limit frequency read-out on active channel for phase displays
LFR	Select limit frequency readout for active channel
LLM?	Output limit line display mode, single or segmented
LLO	Turn on lower limit for active channel and set to value

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
LLO?	Lower limit setting for active channel query
LLO2	Turns on lower limit and set to value for bottom graph
LLO2?	Outputs lower limit value for bottom graph on active channel
LOF	Turn off limits display
LOL0	Turn off lower limit on active channel
LOL1	Turn on lower limit at current value on active channel
LOL20	Turn lower limit off for bottom graph on active channel
LOL21	Turn lower limit on at current value for bottom graph on active channel
LOL2X?	Lower limit for bottom graph on/off query
LOLX?	Lower limit ON/OFF query
LON	Turn on normal (non-segmented) limits display
LON?	Normal (non-segmented) limits display ON/OFF query
LPF?	Channel 1-4 limit test failure query
LPF1?	Channel 1 limit test failure query
LPF2?	Channel 2 limit test failure query
LPF3?	Channel 3 limit test failure query
LPF4?	Channel 4 limit test failure query
LS1	Set lower segmented limit 1 as the active segment
LS10	Set lower segmented limit 10 as the active segment
LS2	Set lower segmented limit 2 as the active segment
LS3	Set lower segmented limit 3 as the active segment
LS4	Set lower segmented limit 4 as the active segment
LS5	Set lower segmented limit 5 as the active segment
LS6	Set lower segmented limit 6 as the active segment
LS7	Set lower segmented limit 7 as the active segment
LS8	Set lower segmented limit 8 as the active segment
LS9	Set lower segmented limit 9 as the active segment
LSB	Select least significant byte first binary transfer
LSEG	Select segmented limit line display mode
LSNG	Select single limit line display mode
LSX?	Output active segmented limit
LT0	Turn off limits pass/fail testing
LT1	Turn limits testing ON
LT1?	Limits pass/fail testing ON/OFF query
LTST	Display the limits testing menu
LUP	Turn on upper limit and set to value
LUP?	Output upper limit value for active channel
LUP2	Turn on upper limit and set to value for bottom graph
LUP2?	Outputs upper limit value for bottom graph on active channel
LVH	Turn on limits pass/fail testing rear panel TTL high voltage output
LVL	Turn on limits pass/fail testing rear panel TTL low voltage output
LVX?	Limits testing TTL level setting query
SLC	Clear all segmented limit definitions
SLH	Set segmented limits horizontal offset
SLH?	Segmented limits horizontal offset query
SLL0	Turn lower segmented limits display OFF
SLL1	Turn lower segmented limits display ON
SLLX?	Lower segmented limits display ON/OFF query
SLU0	Turn upper segmented limits display OFF

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
SLU1	Turn upper segmented limits display ON
SLUX?	Upper segmented sweep limits display ON/OFF query
SLV	Set segmented limits vertical offset
SLV?	Segmented limits vertical offset query
SPH	Set active segmented limit horizontal stop position
SPH?	Active segmented limit horizontal stop position query
SPV	Set active segmented limit vertical stop position
SPV?	Active segmented limit vertical stop position query
STH	Set active segmented limit horizontal start position
STH?	Active segmented limit horizontal start position query
STV	Set active segmented limit vertical start position
STV?	Active segmented limit vertical start position query
UPL0	Turn off upper limit for the active channel
UPL1	Turn on upper limit for the active channel
UPL20	Turn upper limit off for bottom graph
UPL21	Turn upper limit on at current value for bottom graph
UPL2X?	Output upper limit on/off status for bottom graph
UPLX?	Upper limit ON/OFF query
US1-US10	Make USx the active segmented upper
Markers, Chapter 6	
AMKR	Select active marker on all channels marker mode
BWL3	Set 3 dB for bandwidth loss value
BWLS	Enter bandwidth loss value
BWLS?	Output bandwidth loss value
DR1	Select Marker 1 as Delta Reference Marker
DR2	Select Marker 2 as Delta Reference Marker
DR3	Select Marker 3 as Delta Reference Marker
DR4	Select Marker 4 as Delta Reference Marker
DR5	Select Marker 5 as Delta Reference Marker
DR6	Select Marker 6 as Delta Reference Marker
DRF	Turn delta reference mode ON
DRO	Turn Delta reference mode OFF
DRO?	Delta reference marker mode ON/OFF query
DRX?	Delta reference marker number query
DSF0	Disable automatic filter shape factor calculation
DSF1	Enable automatic filter shape factor calculation
DSFX?	Output automatic filter shape factor calculation enable/disable status
DSQ0	Disable automatic filter Q calculation
DSQ1	Enable automatic filter Q calculation
DSQX?	Output automatic filter Q calculation enable/disable status
FLTBW?	Output filter bandwidth
FLTC?	Output filter center frequency
FLTL?	Output filter loss at reference value
FLTQ?	Output filter Q
FLTS?	Output filter shape factor
FMKR	Select filter parameters marker mode
M1C	Marker 1 CW frequency
M1E	Marker 1 sweep/zoom end frequency, time, or distance
M1S	Marker 1 sweep/zoom start frequency, time, or distance
M2C	Marker 2 CW frequency
M2E	Marker 2 sweep/zoom end frequency, time, or distance
M2S	Marker 2 sweep/zoom start frequency, time, or distance

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
M3C	Marker 3 CW frequency
M3E	Marker 3 sweep/zoom end frequency, time, or distance
M3S	Marker 3 sweep/zoom start frequency, time, or distance
M4C	Marker 4 CW frequency
M4E	Marker 4 sweep/zoom end frequency, time, or distance
M4S	Marker 4 sweep/zoom start frequency, time, or distance
M5C	Marker 5 CW frequency
M5E	Marker 5 sweep/zoom end frequency, time, or distance
M5S	Marker 5 sweep/zoom start frequency, time, or distance
M6C	Marker 6 CW frequency
M6E	Marker 6 sweep/zoom end frequency, time, or distance
M6S	Marker 6 sweep/zoom start frequency, time, or distance
MK1	Turn on Marker 1 and set to frequency, time or distance
MK1?	Marker 1-6 setting query
MK2	Turn on Marker 2 and set to frequency, time or distance
MK2?	Output Marker 2 frequency, time or distance
MK3	Turn on Marker 3 and set to frequency, time or distance
MK3?	Output Marker 3 frequency, time or distance
MK4	Turn on Marker 4 and set to frequency, time or distance
MK4?	Output Marker 4 frequency, time or distance
MK5	Turn on Marker 5 and set to frequency, time or distance
MK5?	Output Marker 5 frequency, time or distance
MK6	Turn on Marker 6 and set to frequency, time or distance
MK6?	Output Marker 6 frequency, time or distance
MKRC	Select interpolated marker functionality
MKRD	Select discrete marker functionality
MKRX?	Output interpolated/discrete marker functionality
MKSL	Marker search left
MKSR	Marker search right
MKT0	Turn marker tracking OFF
MKT1	Turn marker tracking ON
MKTX?	Output marker tracking ON/OFFstatus
MMN	Set active marker to minimum trace value on active channel
MMX	Set active marker to maximum trace value on active channel
MO1	Turn Off marker 1
MO2	Turn Off marker 2
MO3	Turn Off marker 3
MO4	Turn Off marker 4
MO5	Turn Off marker 5
MO6	Turn Off marker 6
MOF	Turn Marker display OFF
MON	Turn Marker display ON
MON?	Markers displays ON/OFF query
MR1	Select Readout marker 1
MR1?	Output marker 1 ON/OFF status
MR2	Select Readout marker 2
MR2?	Output marker 2 ON/OFF status
MR3	Select Readout marker 3
MR3?	Output marker 3 ON/OFF status
MR4	Select Readout marker 4
MR4?	Output marker 4 ON/OFF status
MR5	Select Readout marker 5
MR5?	Output marker 5 ON/OFF status

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
MR6	Select Readout marker 6
MR6?	Output marker 6 ON/OFF status
MRX?	Output active marker number
MSFH	Enter high loss value for shape factor calculation
MSFH?	Output high loss value for shape factor calculation
MSFL	Enter low loss value for shape factor calculation
MSFL?	Output low loss value for shape factor calculation
MSR0	Select 0 as ref for marker search and bandwidth calculation
MSRD	Select delta ref marker as ref for marker search and bandwidth calculation
MSRM	Select max as ref for marker search and bandwidth calculation
MSRX?	Output ref selection for marker search and bandwidth calculation
NMKR	Select normal markers on active channel marker mode
SMKR	Select marker search marker mode
SRCH	Enter marker search value
SRCH?	Output marker search value
XMKR?	Output marker mode
	Measurement, Chapter 4
AH0	Turn automatic DUT protection OFF
AH1	Turn automatic DUT protection ON
AHX?	Output automatic DUT protection ON/OFF status
BH0	Turn bias off while in Hold mode
BH1	Turn bias on while in Hold mode
BHX?	Output bias on/off during Hold mode query
CNTR	Enter center frequency
CNTR?	Output center frequency
CTN	Continue sweeping from current frequency
CWF	Turn CW mode ON and set frequency
CWF?	CW mode frequency query
CWON	Turn CW mode ON at last frequency set
CWON?	CW mode ON/OFF query
CWP	Set number of trace data points to be drawn in CW mode
CWP?	Number of trace data points to be drawn in CW mode query
FHI	Set data points to 1601
FIL	Fill defined discrete frequency range
FLO	Set data points to 101
FME	Set data points to 401
FP0	Turn flat power correction OFF
FP1	Turn flat power correction ON
FRC	Clear all defined discrete frequency ranges
FRI	Set discrete frequency fill range increment frequency
FRP	Set discrete frequency fill range number of points
FRS	Set discrete frequency fill range start frequency
HLD	Hold sweep at current point
HLD?	Hold mode query
LAX?	Current sweep direction query
NP101	Set data points to 101
NP1601	Set data points to 1601
NP201	Set data points to 201
NP401	Set data points to 401
NP51	Set data points to 51
NP801	Set data points to 801
ONDF	Output the current number of discrete fill frequencies
PTP	Enter the target power for flat power correction

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
PTP?	Output the target power for flat power correction
PW2	Set external source power
PW2?	External source power query
PWR	Adjust internal source power
PWR?	Internal source power query
RH0	RF off while in hold
RH1	RF on while in hold
RHX?	RF ON/OFF while in hold query
SA1	Set port 1 source attenuator
SA1?	Port 1 source attenuator query
SETUP	Display the most appropriate setup menu at this time
SPAN	Enter frequency span
SPAN?	Output frequency span
SRT	Set start frequency
SRT?	Start frequency query
STP	Set stop frequency
STP?	Stop frequency query
SWP	Return to full sweep mode
SWP?	Sweep mode query
SWPDIR?	Outputs the instantaneous sweep direction forward/reverse
TA2	Set port 2 test attenuator
TA2?	Port 2 test attenuator query
TEX	Select external measurement triggering via the rear panel connector
TIN	Select internal measurement triggering
TRS	Trigger/restart sweep
TXX?	Trigger source query
WFS	Wait full sweep until all display data is valid
Measurement Data, Chapter 7	
DPRX?	Outputs the data pair mode visible/pair always
OGCFD	Output gain compression final data to GPIB
OS11C	Output corrected S11 data
OS11R	Output raw S11 data
OS12C	Output corrected S12 data
OS12R	Output raw S12 data
OS21C	Output corrected S21 data
OS21R	Output raw S21 data
OS22C	Output corrected S22 data
OS22R	Output raw S22 data
Measurement Points Chapter 7	
IFV	Input frequency list
ODV	Output converted distance values for time domain sweep points
OFV	Output frequency values for current sweep
OGCFV	Output gain compression frequency values
ONP	Output number of points currently being measured
ONPV	Output the number of power sweep power values
OPSV	Output power sweep power values
OTV	Output time values for time domain measurement points
Miscellaneous, Chapter 7	
IHDW	Enter Hardware calibration data from the GPIB
IKIT	Enter calibration kit data from the GPIB
INRM	Enter normalization data from the GPIB
OHDW	Output hardware callibration data to the GPIB
ONRM	Output normalization data for the active channel
Multiple Source, Chapter 9	
BD1 - BD5	Select band 1, 2, 3, 4, or 5 for definition
BSP	Set stop frequency for current band
BSP?	Stop frequency for current band query

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
BST	Set band 1 start frequency
BST?	Band 1 start frequency query
CLB	Clear all band definitions
ECW	Sets multiple source control equation to CW mode
ED1	Edit Source 1 equation
ED2	Edit Source 2 equation
EDR	Edit receiver multiple source control equation
EDV	Set divisor for equation being edited
EDV?	Divisor for equation being edited query
EML	Set multiplier for equation being edited
EML?	Multiplier for equation being edited query
EOS	Set offset frequency for equation being edited
EOS?	Offset frequency for equation being edited query
ESW	Sets the multiple source control equation in the sweep mode
EXW?	Multiple source sweep/CW flag for equation being edited query
MS0	Turn Multiple Source mode OFF
MS1	Turn Multiple Source mode ON
MSD	Select multiple Source DEFINE mode
MSX?	Multiple source ON/OFF/DEFINE mode query
SRC1AC	Select source 1 as active
SRC1AC?	Output source 1 active/inactive status
SRC1EX	Select source 1 as external
SRC1EX?	Output source 1 external/internal status
SRC1G0	Turn source 1 GPIB control OFF
SRC1G1	Turn source 1 GPIB control ON
SRC1GX?	Output source 1 gpib control ON/OFF status
SRC1NA	Select source 1 as inactive
SRC1NT	Select source 1 as internal
SRC2AC	Select source 2 as active
SRC2AC?	Output source 2 active/inactive status
SRC2G0	Turn source 2 GPIB control OFF
SRC2G1	Turn source 2 GPIB control ON
SRC2GX?	Output source 2 gpib control ON/OFF status
SRC2NA	Select source 2 as inactive
SVB	Save current band definitions
	Peripheral Test, Chapter 8
DGT	Display and graphics test on VNA CRT
DGT1	Display first CRT test pattern on VNA CRT
DGT2	Display 2nd CRT test pattern on VNA CRT
DGT3	Display 3rd CRT test pattern on VNA CRT
EKT	External keyboard test
FPT	Front panel keypad test
PRT?	Printer test
	Real Panel Output, Chapter 9
RPO	Set rear panel output voltage value
RPO?	Rear panel output voltage value query
RV0	Turn rear panel output voltage OFF
RV1	Turn rear panel output voltage ON
RV1?	Rear panel output voltage ON/OFF query
RVD	Rear panel output mode = dc value
RVH	Select the horizontal rear output voltage mode
RVL	Select the lock-direction-output-voltage mode
RVV	Select the rear panel output voltage to be vertical
RVX?	Rear panel output voltage (analog out) mode query
VSP	Select rear panel output voltage voltage stop value
VSP?	Rear panel output voltage stop value query

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
VST	Select rear panel output voltage start value
VST?	Rear panel output voltage start value query
	Receiver Mode, Chapter 9
SDR?	Output the receiver mode
SL1	Select source lock mode
ST1	Select set on mode
TK1	Select tracking mode
	Remote Only, Chapter 7
IC1	Input Calibration Coefficient 1
IC10	Input Calibration Coefficient 10
IC11	Input Calibration Coefficient 11
IC12	Input Calibration Coefficient 12
IC2	Input Calibration Coefficient 2
IC3	Input Calibration Coefficient 3
IC4	Input Calibration Coefficient 4
IC5	Input Calibration Coefficient 5
IC6	Input Calibration Coefficient 6
IC7	Input Calibration Coefficient 7
IC8	Input Calibration Coefficient 8
IC9	Input Calibration Coefficient 9
ICA	Input calibration coefficient A
ICB	Input calibration coefficient B
ICC	Input calibration coefficient C
ICD	Input corrected data for active channel S-parameter
ICF	Input Front Panel Setup and Calibration data
ICL	Input all calibration coefficients
IEM	Input Extended Event Status Enable Register
IFD	Input final (graph display format) data for S-parameter of active channel
IFP	Input current front panel setup
ILM	Input Limits Status Enable Register
IPM	Set Service Request Enable Register
IS1	Input front panel setup 1
IS10	Input front panel setup 10
IS2	Input front panel setup 2
IS3	Input front panel setup 3
IS4	Input front panel setup 4
IS5	Input front panel setup 5
IS6	Input front panel setup 6
IS7	Input front panel setup 7
IS8	Input front panel setup 8
IS9	Input front panel setup 9
LID	Enter label string for device ID
LID?	Output label string for device ID
LMS?	Output label string for model/serial number
LNM	Enter label string for operator's name
LNM?	Output label string for operator's name
MPN	Enter pen number for markers and limits
MSB	Select most significant byte first binary data transfer format
OAM1	Output channel 1 active marker value
OAM2	Output channel 2 active marker value
OAM3	Output channel 3 active marker value
OAM4	Output channel 4 active marker value
OC1-OC12	Output calibration coefficients 1-12
OCA, OCB, OCC	Output calibration coefficients A, B, or C
OCD	Output corrected data for active channel's S-parameter
OCF	Output calibration information and front panel setup
OCL	Ouput all calibration coefficients
ODR	Output floppy disk directory
ODRH	Output hard disk directory

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
OFD	Output final (display format) data for active channel's S-parameter
OFP	Output current front panel setup
OID	Output instrument information string
OLM	Output limits status byte enable
OM1-OM6	Output marker 1-6 value for active channel
ORD	Output raw data for active channel's parameter
OS1-OS10	Output stored front panel setup 1 to 10
OSL	Output service log
	Save/Recall, Chapter 8
RC1-RC10	Recall front panel setup from internal memory 1-10
SV1-SV10	Save front panel setup to internal memory 1-10
	Status Reporting, Chapter 7
CSB	Clear ALL status event registers.
OEB	Output Extended Event Status Register
OEM	Output Extended Event Status Enable Register
OLB	Output limits pass/fail testing status byte.
	System State, Chapter 8
ANNCOL	Enter the color number for annotation and menu text
ANNCOL?	Annotation and menu text color number query
BEEP0	Disable the instrument beeper on GPIB errors.
BEEP1	Enable the instrument beeper on GPIB errors.
BEEPX?	Output the GPIB beep on error enable/disable status.
BLU	Select blue as third plane color
CYN	Select cyan as third plane color
DATCOL	Enter the color pallete number for data
DATCOL?	Data color number query
DATE	Enter the system date
DATE?	Output the system date
DC1	Display channel 1 and 2 operating parameters
DC3	Display channel 3 and 4 operating parameters
DCP	Display calibration parameters
DCP1	Display Calibration Parameters 1st page
DCP2	Display Calibration Parameters 2nd page
DD0	Turn Data drawing OFF
DD1	Turn Data drawing ON
DD1?	Data drawing ON/OFF query
DF2	Display 2.4 mm female standard information on VNA CRT
DF3	Display GPC-3.5 female standard information on VNA CRT
DFK	Display K female standard information on VNA CRT
DFN	Display N female standard information on VNA CRT
DFP	Display front panel instrument state on VNA CRT
DFS	Display SMA female standard information on VNA CRT
DFT	Display TNC female standard information on VNA CRT
DFV	Display V female standard information on VNA CRT
DG7	Display GPC-7 male standard information on VNA CRT
DGS	Display GPIB status information on VNA CRT
DM2	Display 2.4 mm male standard information on VNA CRT
DM3	Display GPC-3.5 male connector information on VNA CRT
DMK	Display K male connector information on VNA CRT

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
DMN	Display N male connector information on VNA CRT
DMS	Display SMA male connector information on VNA CRT
DMT	Display TNC male connector information on VNA CRT
DMV	Display V male connector information on VNA CRT
DWG	Display waveguide standards parameters
FOF	Blank frequency information
FON	Turns on frequency display and hard copy output
FOX?	Output frequency blanking ON/OFF query
GRTCOL	Enter the color number for the graticule
GRTCOL?	Graticule color number query
HC0	Disable Internal IF calibration
HC1	Enable Internal IF calibration and trigger an IF calibration
HCT	Trigger an IF calibration
HCX?	Internal IF calibration enabled/disabled query
LAYCOL	Enter the color number for overlay data
LAYCOL?	Overlay data color number query
MKRCOL	Enter the color number for the markers, time or distance
MKRCOL?	Markers color number query
MNUCOL	Enter the color number for the menu headers
MNUCOL?	Menu header color number query
RST	Reset default state
RST0	Reset instrument plus front panel memories and reserved parameters
RST1	Reset instrument plus front panel memories
RTL	Return to local (front panel) control
TIME	Enter the system time
TIME?	Output the system time
TRCCOL	Enter the color number for memory data
TRCCOL?	Memory data color number query
Time Domain, Chapter 9	
DCS	Select Short for DC term for lowpass
DCV	Enter value for DC term for lowpass
DCV?	Output lowpass DC term value
DCX?	Output lowpass DC term selection
DCZ	Select Line Impedance for DC term for lowpass
DDX?	Output active channel domain parameter (frequency distance or time)
DPI	Select distance phasor impulse mode for active channel
FGT	Select frequency with time gate mode for active channel
FQD	Select Frequency Domain for active channel
GCT	Set gate center value for active channel time/distance domain
GCT?	Output gate center value
GDS	Show gate symbols display on active channel
GLS	Select low sidelobe gate shape
GMS	Select minimum sidelobe gate shape
GNM	Select nominal gate shape
GOF	Turn off gating on active channel
GOF?	Output gating mode on active channel
GON	Turn on gating on active channel
GRT	Select rectangular gate shape
GSN	Set gate span value
GSN?	Output gate span value
GSP	Set gate stop value
GSP?	Output gate stop value
GST	Enter gate start value
GST?	Output gate start value
GSX?	Output gate shape

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function
LPI	Select lowpass impulse response for active channel
LPS	Select lowpass step response for active channel
LPSX?	Output lowpass response (impulse or step) for active channel
MRR	Restore original sweep range (unzoom marker sweep)
TBP	Select time bandpass processing mode for active channel
TDDIST	Set time domain parameter to distance for active channnel
TDDIST?	Output active channel time domain parameter (time or distance)
TDPI0	Turn phasor impulse response off for active channel
TDPI1	Turn phasor impulse response on for active channel
TDPIX?	Output phasor impulse on/off status for active channel
TDTIME	Set time domain parameter to time for active channel
TDX?	Time Domain mode query
TLP	Select time lowpass mode for active channel
TPI	Select time phasor impulse mode for active channel
WLS	Select low sidelobe window shape for active channel
WMS	Select minimum sidelobe window shape for active channel
WNM	Select nominal window shape
WRT	Select rectangular window shape
WSX?	Output window shape
ZCT	Set zoom range center value for time domain sweep
ZCT?	Output zoom range center value
ZSN	Set zoom range span value
ZSN?	Output zoom range span value
ZSP	Set zoom range stop value
ZSP?	Output zoom range stop value
ZST	Set zoom range start value
ZST?	Output zoom range start value
Transmission Methods, Chapter 7	
FDH0	Specifies that arbitrary block header length will be variable depending on the block size
FDH1	Specifies that all arbitrary block header lengths will be 11 characters
FDH2	Eliminates the arbitrary block header for the current program messages
FDHX?	Outputs the arbitrary block format mode currently active
FMT0	Selects normal ASCII data element delimiting
FMT1	Selects enhanced ASCII data element delimiting
FMTX?	Outputs the ASCII data element delimiting mode, normal or enhanced
Triggers, Chapter 7	
TEB	Select external trigger executes the *DDT trigger definition
TIB	Select GPIB measurement triggering
User Defined Parameters, Chapter 9	
DA1	Select a1 = Ra as denominator for the parameter being defined
DA2	Select a2 = Rb as denominator for the parameter being defined
DB1	Select b1 = Ta as denominator for the parameter being defined
DB2	Select b2 = Tb as denominator for the parameter being defined
DE1	Select unity as denominator for parameter being defined
DEN?	Output denominator selection for parameter being defined
LA1	Select a1 = Ra as phase lock for parameter being defined

Table 2. 371XXA Programming Code, Functional Grouping

Command	Function	Command	Function
LA2	Select a2 = Rb as phase lock for parameter being defined	NUM?	Output numerator selection for parameter being defined
LAX?	Output phase lock selection for the parameter being defined	USL	Enter label string for user parameter being defined
NA1	Select a1 = Ra as numerator for the parameter being defined	USL?	Output the label string for the user parameter being defined
NA2	Select a2 = Rb as numerator for the parameter being defined	USR1	Measure user parameter 1 on active channel
NB1	Select b1 = Ta as numerator for the parameter being defined	USR2	Measure user parameter 2 on active channel
NB2	Select b2 = Tb as numerator for the parameter being defined	USR3	Measure user parameter 3 on active channel
NU1	Select unity as numerator for parameter being defined	USR4	Measure user parameter 4 on active channel